

ROYAL SHOW ISSUE

# Agriculture

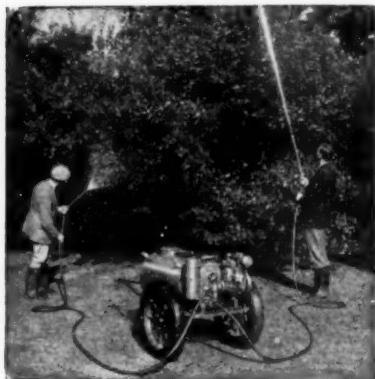


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No. 4

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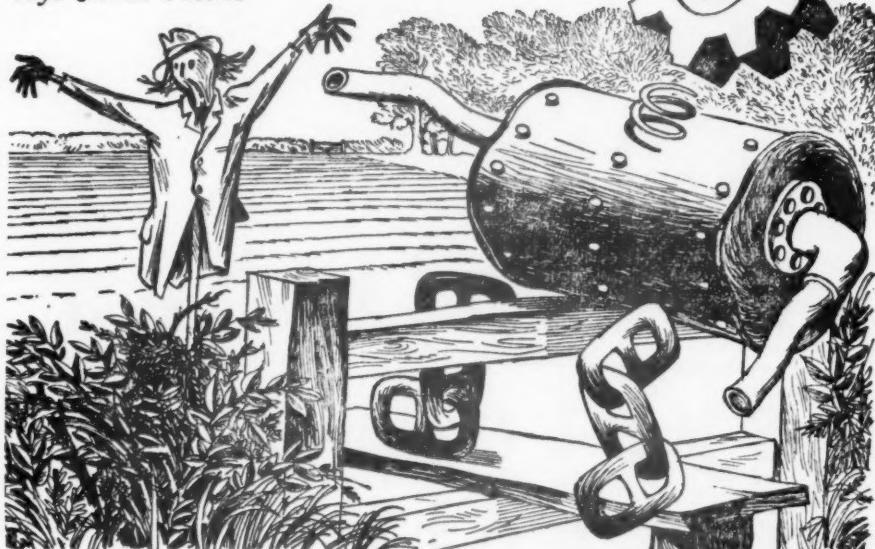


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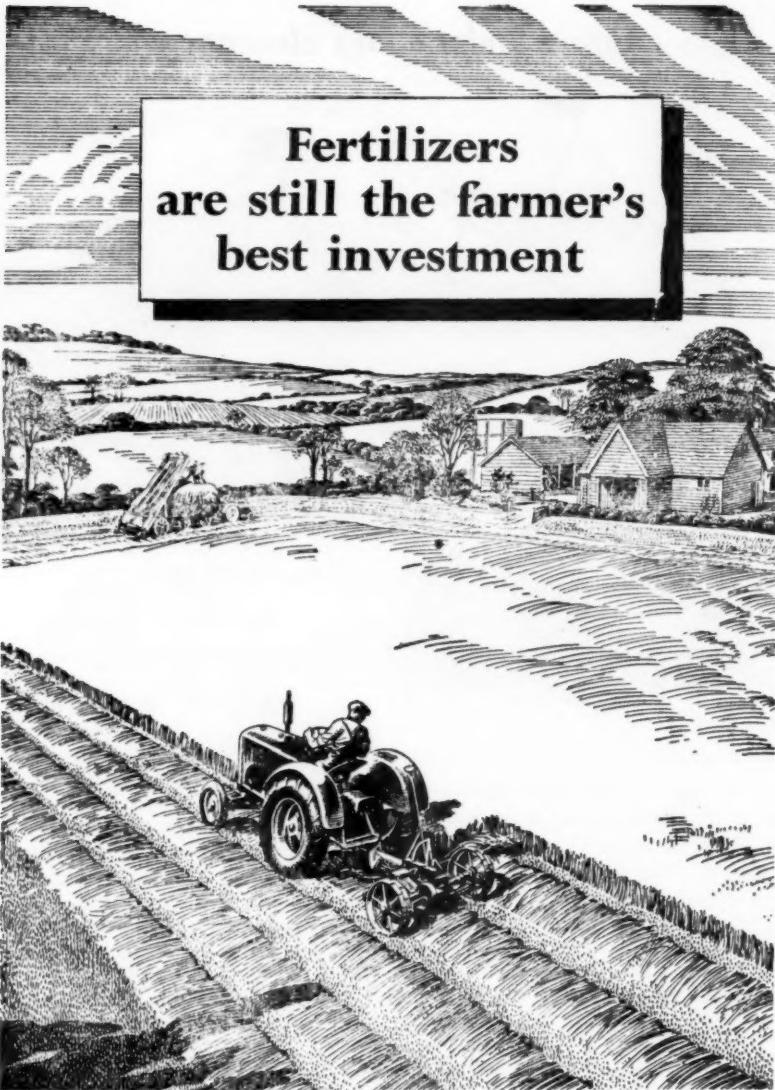


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Editorial Offices : St. Andrew's Place, Regent's Park, N.W.1 (Phone : WELbeck 7711)

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## Cover Photograph

*Gateway to Devon : The Teign Estuary looking towards Shaldon*  
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# AGRICULTURE

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## ADVISORY WORK IN DEVON AND CORNWALL

COLIN D. ROSS, O.B.E., B.Sc.

*Provincial Director, National Agricultural Advisory Service,  
South-Western Province*

THE present shortage of food in the world is causing much anxiety in this country, since we have in the past maintained a high standard of living by depending on large imports of cheap food from abroad. The most careful calculations lead us to the conclusion that under present-day circumstances, and indeed for a long time to come, the day of ample supplies of cheap food and feedingstuffs has gone, perhaps never to return.

I will outline one or two of the facts. World population has been increasing and seems likely to increase more rapidly than the food supply. It has been estimated that since 1940 the world population has increased by 12 per cent, whereas in the same period food production has increased by only 9 per cent. The former great exporting countries of Argentina and Australia are consuming more of their own produce, and the recent drought in Australia may make it impossible for us to obtain any meat from that source this year. New Zealand is increasing supplies to us, but the only other countries we can rely upon for imports of food and feedingstuffs are those to whom we have to pay dollars and, as we all know, there is a limit to the dollars which we are able to afford. As far as we can predict, there is no danger of a flood of cheap imported food arriving on our home markets, and, as used to happen overnight, wrecking the whole farming economy. Further, we now have security of prices under the 1947 Act.

There is a growing realization by both farmer and townsman that this is not a short-term problem which can be solved easily. All these facts point to the urgent need to develop by every means in our power the production of food from our own land. The farmers in England can feel confident that for many years to come we will be able to consume all the food that they can produce. By their efforts we are also saving dollars and helping our economic recovery.

There can be no doubt that by the greater application of modern scientific and technical knowledge in the growing and utilization of our crops and the feeding and management of our livestock, a great increase in the output of food could be obtained. It is mainly to provide advice on such technical matters that the N.A.A.S. and the other advisory services of the Ministry were created.

## ADVISORY WORK IN DEVON AND CORNWALL

**A Chain of N.A.A.S. Advice** I welcome this opportunity of giving a brief account of our activities in Devon and Cornwall, where we are assisting the farming community to produce more and at the same time conserving the fertility of the land for future generations. We must remember that the Service is designed to provide a chain of advice from the District Officer (who usually visits the farmer in the first instance) through the County Headquarters to the Specialist at Provincial level and so to the Research Stations. It is impossible for any adviser to be familiar with the whole field of agricultural science today, and it is important he should be able to consult a specialist adviser on such subjects as the chemistry of the soil, crops, stock, grassland, milk, machinery, and horticulture. It is the specialist's responsibility to keep abreast of new knowledge and developments in his subject, so that he can be in a position to give the best possible advice to the county officer and to the farmer, and he should if necessary design experiments and field investigations to get to the bottom of any intricate problem.

The advisory problems in the South-West are complicated, particularly in Devon and Cornwall, by the number of small farms :

Acres	Devon	Cornwall
Under 5 .. .. ..	2,005	2,197
5-50 .. .. ..	6,347	6,643
50-150 .. .. ..	5,881	3,424
150-500 .. .. ..	2,034	826
Over 500 .. .. ..	19	5
	<b>16,286</b>	<b>13,095</b>

These small farms are mostly run by the farmer and his family with one, or at the most, two paid workers. This type of farm is mainly engaged in a livestock enterprise ; milk production or stock rearing, with pigs and poultry.

The table below shows the trend of livestock and tillage over the past ten years :

	Devon	Cornwall		
	<i>1942</i>	<i>1951</i>	<i>1942</i>	<i>1951</i>
Dairy cows ..	153,846	164,903	106,454	115,656
Total cattle ..	362,713	411,624	241,474	275,418
Total sheep ..	819,351	764,402	219,737	218,208
Total pigs ..	72,827	100,130	72,680	103,319
Total poultry ..	1,859,725	2,945,032	1,291,491	2,266,474
	<i>acres</i>	<i>acres</i>	<i>acres</i>	<i>acres</i>
Total tillage ..	428,420	305,257	254,387	190,123
Permanent grass ..	575,445	611,515	219,293	241,704
Temporary grass ..	130,548	222,583	144,292	190,161

These figures show the need for sound advisory work on the feeding and management of livestock and, with the decreased acreage of tillage, the importance of getting across the best possible management and utilization of the vast area of grassland which is the most important crop in both counties and has the greatest potential value for the production of more meat from the land.

**The Links in the Chain** In our work we have found that by far the best method of getting up-to-date advice across to these small farmers is through the individual visit of the advisory officer to the farm. Problems can then be discussed on the spot, and once the true

## ADVISORY WORK IN DEVON AND CORNWALL

position is known the advisory officer is thus in the best possible position to advise and, if necessary, take samples of soil for analysis or plant specimens for further investigation. Apart from the usual requests for advice on manuring, failure of crops, etc., more and more District Officers are being called upon to deal with farm management problems.

During the past year 15,327 advisory visits were made in Devon and 9,413 in Cornwall, and from these farms 18,470 soil samples were examined and 2,391 milk samples were analysed. This gives some idea of the magnitude of our work.

The next best medium of conveying advice is by lectures and demonstrations. A total of 600 lectures were given in Devon and Cornwall over the past year. These were attended by just over 22,000 people. The inspection of progressive farms by small parties of farmers for the purpose of discussing cropping and farm management problems have been a feature of our work during the year and the interest shown encourages us to continue with them. Both the farmer and the advisory officer are present to explain the whys and wherefores of the different methods adopted.

Here I must refer to the close co-operation with the National Farmers' Union, the Country Landowners' Association, the Workers' Unions, the Young Farmers' Clubs and Farmers' Discussion Groups. In both Devon and Cornwall the N.A.A.S. has organized many successful meetings and demonstrations in conjunction with them.

Of course, a great deal of advice is still given by correspondence and over the telephone, but it is the friendly advisory visit that pays the dividends and is becoming increasingly in demand.

I cannot close this article without a reference to another activity ; that of the educational exhibit at the shows. Here we usually choose a theme and illustrate by demonstration plots and stock how to obtain the desired result. For example, at the Royal Show this year we are staging an exhibit showing the production of beef from the pure beef animal, the dual-purpose animal and the indifferent dairy cow. The outside plots are demonstrating the up-to-date methods of grassland improvement and the production of fodder crops for "home meat production."

**Other Advisory Services** I should remind readers that there are other Ministry advisory services at the disposal of land-owners and occupiers of land, notably those of the Agricultural Land Service, of which Mr. Wood writes briefly in the following article. One of the duties of this Service is to give advice on rural estate management. Committee Land Agents deal with inquiries in the first instance and are able to advise on matters of routine. They can call in their Estate Management Sub-Committee or the Land Commissioner as appropriate. The latter is responsible for the work in two counties. He is able to refer the more difficult problems to the Provincial Land Commissioner, who has a Farm Buildings Advisory Officer attached to his Headquarters. Advice on the erection and adaptation of farm buildings and other fixed equipment has so far formed a large part of this side of the work.

I have space only to refer to the fact that there is also available first-class advice on land drainage and water supplies, pest problems, and it should be more widely known that the farmer's vet. is able to call in the Ministry's Veterinary Investigation Officer as necessary.

## ADVISORY WORK IN DEVON AND CORNWALL

I must pay tribute to the excellent foundation of advisory work both in Devon and Cornwall, which was laid by the County Councils who, more than forty years ago, recognized the importance of sound advice to the agricultural community. It is very largely the patient spade-work of the old county staffs that has made it more easy for the new Service to operate successfully in the friendly atmosphere which now exists between the adviser and the farmer.

## FARM BUILDINGS

N. B. WOOD, A.R.I.C.S., A.M.T.P.I.  
*Agricultural Land Service, South-Western Province*

THE Agricultural Land Service fulfils a function, in relation to estate management, four-square with that of the National Agricultural Advisory Service for husbandry. Every farmer, and indeed most landowners, know their District Officer, and through him are aware of the advice which can be obtained from the N.A.A.S. ; but far less is known of the advice available on problems of estate management and allied work.

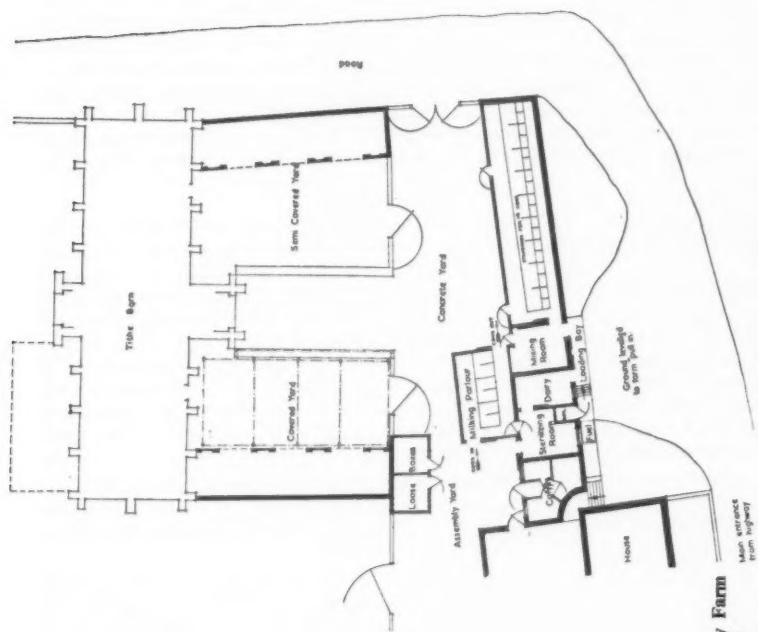
In most provinces there are only two or three specialist buildings advisory officers of the A.L.S., and these are stationed at Provincial Headquarters. As far as possible all inquiries for advice should be made through the local officer of the A.L.S., i.e., the Committee Land Agent attached to the Agricultural Executive Committee or the District Land Commissioner. The answers to points of basic information are often readily available locally, and straightforward inquiries, not requiring particular specialist advice can, therefore, receive immediate attention, thus saving the applicant's time.

One of the main criticisms of an advisory service is that it can easily become divorced from practicalities and, that whilst it remains purely advisory, it is not "tried in the furnace." The Agricultural Land Service, however, is charged with the duty of assisting the Agricultural Land Commission in the management of land vested in the Minister of Agriculture. In carrying out these duties, the Farm Buildings Advisory Staff are responsible for the preparation of improvement schemes, working drawings and specifications, for obtaining tenders, and for supervising works to completion. The Agricultural Land Service is fully alive to its especial responsibilities and to the duty it performs as agent, especially on the economy aspect of improvement schemes.

There is, therefore, in the Land Service, running alongside the everyday advisory duties, this essentially practical work which ensures that the feet of advisory officers are kept firmly on the ground.

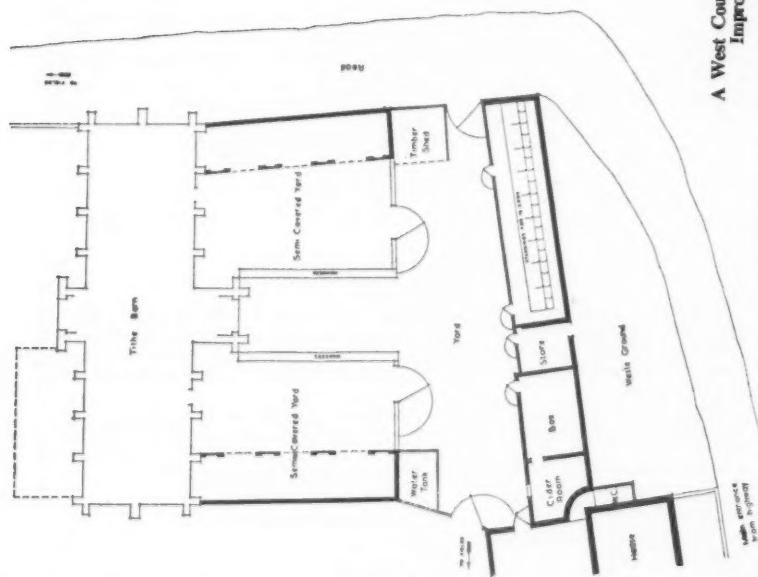
The writer's own sphere of activity is in the South-Western Province, which ranges from the open downs and large farms of Wiltshire and Dorset, to the small dairy farms and the family hill and moorland farms of Somerset and Devon. As is obvious from such diverse farming activities, the nature of inquiries received varies considerably. The most useful work is done in assisting the smaller farmer in the Province.

## FARM BUILDINGS



**A West Country Farm Improved**

(See also photographs on  
p. 155 of the art section).



## FARM BUILDINGS

The large downland farmer's problems fall mainly into one of two categories : grain storage or large-scale dairying, and the basic principles on which to build up the solution to his difficulties are fairly well established. The smaller farmer, whether dairying, stock raising, or corn growing, is faced with the problem of how to accommodate increased production without additional labour or over-capitalization. The South-Western Province raises another special problem in that the small farms tend to lie in the areas of highest rainfall, so often necessitating the housing of stock in winter.

**Illustration from a West Country Farm** The nature of the advisory work undertaken on this smaller type of farm is well illustrated by the plans on the previous page and the photographs on page viii of the art inset. On this particular farm, the existing buildings formerly consisted of a shippon for 18 cows with two open yards and shelters which were useless in winter, a store, box, and disused cider room. The farmer wished to increase his milking herd to 40-45 and rear all followers without increasing the labour beyond his family. The total cost of the improvements carried out, including the new implement shed, new concrete paving and repairs, installing electricity and water supplies was £4,000. The extra 25 cows in milk more than justified this expenditure.

Much work is now being done in connection with the Livestock Rearing Act, 1951, under which the scope of improvements to the fixed equipment eligible for grant can range from a cattle crush to the complete rebuilding of the homestead.

It is in the sphere of planning for economy in labour that the greatest help can be given by the advisory officers of the Agricultural Land Service. One can often see fairly quickly the solution which will enable extra stock to be housed, or milk to be produced under cleaner conditions; but how to do both of these and also save an hour a day when feeding stock is usually not so self-evident. It is obvious that the solutions to such re-arrangements are not found in five minutes ; a building or structural alteration will have to stand for years, and a scheme carried out in haste will most certainly be repented at leisure.

### The Farming Pattern in Devon

A new publication entitled *Devon Farming : A First Study*, which will be on sale at the Royal Show, should prove of outstanding interest to all visitors to the Show. It brings out, in a series of maps, a comprehensive picture of the pattern of agriculture in the county, including details of cropping plans and the distribution of livestock breeds.

*Devon Farming* has been prepared by the Devon Agriculture Study Group, and is available from the Ministry of Agriculture's Bookstall, from the Devon County Council Stand, or from the County Planning Department of the Devon County Council, Bradninch Hall, Castle Street, Exeter, price 3s. (3s. 3d. by post).

## WEST COUNTRY LANDSCAPE

PROFESSOR L. DUDLEY STAMP, C.B.E., D.LIT., D.Sc.

*Honorary Adviser on Rural Land Use  
to the Ministry of Agriculture*

THE south-western counties of Somerset, Devon and Cornwall have several features which mark them off from the rest of the country. They lie south of a line joining the Severn and the Thames, and this part of England was never covered by the ice-sheets of the Great Ice Age. No mantle of glacial drift—of boulder clay or sand and gravel—covers the land, as it does over so much of the Midlands and East: consequently the soils are derived directly from the solid rocks beneath.

Thus the geological map affords a first important clue to the types of land to be expected. What does it show? It shows, west of a line passing north and south roughly through Exeter, a complex of old rocks—Devonian and Culm Measures—with still older ones in patches along the south coast around Start Point and the Lizard. Culm Measures are Coal Measures without coal—sandstones and shales sometimes with streaks of coaly material or culm—and they and the slates, shales and sandstones of the Devonian rocks were intensely folded by great earth movements early in the earth's history. As a result they are hardened, but when seen in the cliffs around the coasts they are highly complicated. When the earth movements were taking place, great masses of molten granite were forced towards the earth's surface, and after many millions of years of weathering these granites have been exposed at the surface. During those many millions of years the present land surface has, at different times, been covered to a varying depth by the sea. It is the waves of the sea which were responsible for smoothing the surface into a succession of high-level plains.

Several hundred feet above sea level the interior of mid- and South Cornwall is often monotonously flat and windswept, and then, suddenly, one finds the gorge-like valleys of present-day rivers. The Cornish farmer, and his fellow in many parts of North Devon, knows these flat, peneplaned surfaces only too well, since they have so little slope as to be most difficult to drain, especially where underlying shales have broken down into a heavy, yellow, clay soil. The granites have proved themselves resistant and stand up as great hill masses above the level of the surrounding country as Dartmoor, Bodmin Moor, Land's End and the almost submerged mass of the Scilly Isles. The highest parts of the granite masses stand out as rocky tors; pockets on their surfaces are filled with the valuable china clay, but of greater interest to the farmer are the light sandy soils, warm and early though often hungry, to which they give rise in places. In the north a mass of sandstone underlies Exmoor and a detached mass of similar moorland—the Quantock Hills of Somerset.

East of the ancient rock masses of Devon and Cornwall are younger rocks—red sands and marls of the New Red Sandstone, like some in the Midlands—so that fertile red Devon of the east has a character differing greatly from that of the west of the county.

Somerset is a county of contrasts. In the west are the sub-marginal lands of Exmoor and the Quantocks, south of which (and adjoining red Devon) lies the very fertile Vale of Taunton Dene. In the north the limestone island of the Mendips has patches of exceptionally favoured land on its margins, as, for example, the strawberry and orchard belt of its southern slopes. The

## WEST COUNTRY LANDSCAPE

eastern and south-eastern margins of the county belong to the varied Jurassic lands of the Midlands, and long, narrow hill ridges like tongues project westwards into that unique heart of the county which forms the Somerset Levels. These are very large stretches of alluvial land with a high water-table which, because of their liability to flooding, may easily become waterlogged and useless : where adequately drained, they afford magnificent grazing and fattening pastures. If the water level could be kept sufficiently low by pumping, the soils would support a wide range of cultivation.

**A Mild Climate** We get much of our weather from the south-west, and strong sou'-westers sweep across the flat surface of Cornwall and Devon making tree growth precarious, especially where there is salt spray in the air, and encouraging the farmer to value the shelter of his stone-faced earth banks. But the winds, if strong, are mild, and in winter the South-West, except on the colder, higher ground, is the mildest part of Britain. At sea level the average temperature in the coldest month is 42-44°F., and the damp south-westerly air streams from over the warm Atlantic not only keep the land moist and green but allow fodder grasses to continue growing in every month of the year. If a powdering or even a pall of snow is a common winter sight on Exmoor or Dartmoor, snow rarely lies for many days at sea level. Rainfall is generally high—only dropping below 35 inches on favoured fringes—and with the high humidity this means a constant fight against soil acidity. Where soils are clayey it is not difficult to understand a local preference for Bude sea sand (30 per cent lime), which lightens the soil by changing it into a loam, instead of agricultural lime. It is not difficult, too, to understand the premium in Devon and Cornwall on shelter from the wind on well-drained slopes or on pockets of good soil, especially where slopes are banked up against the southern sun. Nor is it surprising to find in the south-western counties every type of land from the very finest market-gardens, famed for winter broccoli, early potatoes and other vegetables and fruits, to the poorest moorland which generations of farmers and, in some cases, unlimited capital, have failed to tame. Again, Somerset is rather different from its western neighbours. It lies in the lee of their hill masses, enjoys protection from wind and, on low ground, has but a modest rainfall.

**The Farming Picture** These differences are reflected in the types of farming. When the Ministry of Agriculture prepared its "Types of Farming" map in 1939 it showed the core of the great moorland area of Dartmoor as land of little value, surrounded by a belt where rearing and hill sheep farming were dominant : and the same was true of Exmoor. Over the poorer land of North Devon and North Cornwall, rearing, supplemented by other enterprises, was dominant ; over most of the remainder of the counties either dairying, supplemented by other enterprises, or mixed farming with a substantial dairying side, were the rule. There were areas of specialized farming around Penzance for vegetables and flowers, around Falmouth and the Tamar estuary near Plymouth for market-garden crops, and similar intensive agriculture in the Exeter and Torquay areas.

This picture is still generally true, but whereas before the war much of the land remained in grass, now it has become general to take the plough round the farm, and the counties of Cornwall and Devon present a well-tilled landscape. The small family farm is the rule, with the emphasis usually on dairying. Comparatively few parts are out of range of the daily milk lorry, and if the summer visitor regrets the scarcity of farmhouse butter, Cornish

## WEST COUNTRY LANDSCAPE

scalded and Devonshire clotted cream, it is but an indication of improved communications. Somerset is nearer London and the great consuming centres of Bristol and the Midlands, and so has long been a liquid milk county.

Devon and Cornwall, with their magnificent coastal scenery and juxtaposition of towering cliffs and sheltered, sandy, bathing coves, may claim to be the most alluring of all the holiday counties. Mr. Geoffrey Clark, County Planning Officer for Devon, has calculated that if each summer visitor spends £10 in his normal fortnight's stay, it can be argued that, on a basis of beds for tourists known to be available, more money is brought into the two counties in this way than is received from the sales of agricultural produce off the farms. Nearly every farmer takes summer visitors and does a valuable bit of promotion of town and country understanding by generous provision of poultry, eggs, cream, splits, and honey. There is nothing wrong in this—far from it—but it does mean that the tourist or holiday traffic is of great value to the counties in general and to the farming community in particular. The visitor comes to see the coastal scenery; he comes also to see the beauty of the countryside created by generations of those who have lived there. He does not come to see new council houses, he hates thatch replaced by corrugated iron, he doesn't always know how to behave in the country but he dislikes prohibitive notices, barbed wire, and blocked footpaths. The recognition of Dartmoor as a national park, and the opening up of the old coastal footpath all round the coast of Cornwall will further encourage summer visitors: their presence is a source of wealth to the counties as a whole and to the farming community in particular.

**Possibilities of Development** The south-western counties enjoy special advantages of climate not yet fully exploited.

Nowhere else perhaps are such uses to be made of pockets of land specially favoured by air drainage, exposure to sun, warmth of soil and other factors. Land as yet untamed is waiting to be used—an extension of the market-gardening areas of Penzance for example—whilst the country around Newton Abbot affords numerous examples of the great range within a short distance in type of land and opportunities for farming. Stapledon's survey showed most of the grassland on the old rocks in his lowest category—an indication of how much improvement is possible.

In land quality there is everything from the finest to the almost useless. Both at higher and lower levels where drainage is an almost insuperable difficulty, the best answer for effective land use in the national interest is undoubtedly afforestation. Where so many types of land are often found in juxtaposition the value of a holding may depend on the inclusion of a fair range—streamside meadows for winter keep, a southern slope for an early bite, a northern slope for later feeding, and well-drained upland for ploughing. If all these are contained within a ring fence, the farmer in the South-West, with mild Atlantic air, has something almost unique in Britain.

## DEVON: COUNTY OF DIVERSE FARMING

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THE popular concept of Devon with its red soils, rich grassland, and thatched cottages nestling under apple trees in brilliant sunshine, is unfortunately very wide of the mark, but other well-known features like the high earth banks bounding small fields and narrow lanes are only too common in this mechanized age. I propose in this article to describe the pattern of Devon agriculture so as to enable interested visitors, especially those coming to the Royal Show at Newton Abbot, to visualize the true picture. This article will act as a background to the other articles in this issue dealing with specialized aspects of farming in the county.

Devon can probably show a greater diversity of farming activities than any other county in the country. Not only is it one of the largest but it has a very wide range of soil and climate. At one extreme early flowers, fruit and vegetables follow those from the Channel and Scilly Islands, while at the other Scotch Blackface sheep and Galloway cattle are kept on Dartmoor at altitudes up to 2,000 feet and with a rainfall of 80 inches a year. Indeed it has been said that Devon agriculture is a complete picture in miniature of British agriculture and that consequently Devon mirrors the changes in national agriculture very closely.

There are some 1.1 million acres of crops and grass included in the 17,750 holdings of one acre or more. The holdings are generally small and only average 75 acres, even when the 2,600 holdings with 5 acres of crops and grass or less are excluded. In some districts, such as that around Holsworthy, the average size is less. Many of the farms are family concerns not employing any hired labour, except perhaps some casual help at haymaking and corn harvest.

The hills of Dartmoor and Exmoor are conspicuous features of the landscape and have important influences on the farming pattern by increasing the rainfall. The casual observer, however, frequently fails to notice the remarkable series of high level platforms covering large parts of the county; the most noticeable one is about 430 feet above sea level.

The total rainfall is not only adequate or beyond normal requirements, but it is well distributed throughout the year so that good grass output can be maintained at all seasons. Droughts are infrequent and usually of short duration, or almost unknown in the higher rainfall areas of the north-western parishes, where the annual average is 45 inches and more. The winters are mild, except on Dartmoor and Exmoor, and the growing season is as long as in any part of the country with the exception of Cornwall.

The red soils of the New Red Sandstone series, which are so well known, cover a very small part of the county, however, being found only in the valley of the River Exe and East Devon. The most important soil type unfortunately is the Culm Measure clay, which is found in a wide belt right across the county between Dartmoor and Exmoor, covering almost one-third of the whole county. These give rise to cold, heavy, intractable clays, where drainage is an almost insurmountable problem. The general topography is fairly level and, as mole drainage does not prove effective, and complete tile drainage is generally uneconomic, many fields are quite unsuited to arable cropping and carry a poor herbage and a high proportion of rushes. In the extreme north and again to the south of Dartmoor the soils are very

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varied in character being derived mainly from sandstones, schists and slates, with a few small pockets of limestone.

**Grass and Stock the Pivot** These physical factors all favour the growth of pastures and as a result the agriculture of Devon is built around its grasslands and the livestock which utilize them. The arable crops are also largely grown for feeding to stock rather than for direct sale. Thus in June 1951, there were 833,000 acres of permanent and temporary pasture and only 18,000 acres of wheat, 17,000 acres of potatoes and 1,000 acres of sugar beet, while the bulk of the produce of the 175,000 acres of coarse grains were consumed on the farm.

The importance of livestock is well illustrated by the number of breeds with their home in the county and which form the subject of other articles in this issue. The cattle population of over 400,000 is higher than at any time since agricultural returns were compiled, but sheep, although increasing, have never recovered from the decline during the early war years. There have been spectacular rises in the pig population during recent years, in common with all other areas, but the present figure of 126,000 is still below the numbers kept in the 1930s. Poultry numbers have also expanded to a marked extent and are now nearly up to three million.

It is a difficult task to divide the complicated pattern of farming which has evolved over the years as a result of the impact of external factors such as prices and changing consumer tastes upon the varied basic material described above. The regions are not very clear-cut; not only do they tend to merge one into another, but one finds isolated pockets of one type completely cut off from other areas of the same nature.

I have, for the purpose of this article, taken a number of farming type groups to describe the agriculture of the county. It should be emphasized that the bulk of farms are not devoted to a single enterprise but are true mixed farms producing several products.

*Area I.* On Exmoor and its fringes the rearing of Exmoor Horn and Devon Closewool sheep and Devon cattle are the main farm enterprises. The farms are moderate to above average in size and the amount of arable land is low<sup>(1)</sup>.

*Area II.* The high plateau between Exmoor and Barnstaple is traditionally a livestock-rearing area producing Devon cattle and Closewool sheep, and fattening a small proportion, but of recent years dairying has taken a firm hold.

*Area III.* The Culm Measure belt across North Devon is given over very largely to mixed farming with the emphasis on dairying in many parts, while in others store cattle rearing has been continued. There is considerable variation as the soils differ widely even on the same farm, consequently any plan or description of the whole may be misleading when certain parts are considered in isolation. Dairying is carried on to a greater or less extent in all parishes and on the majority of the farms. The land in the west is poorer, since the clay is generally nearer the surface and drainage is even more difficult than in the east, as the rainfall is higher and the ground flatter. Some of the poorest land has been taken over for forestry and the results are quite promising.

*Area IV. East Devon.* Contrary to the general impression, this district has the highest percentage of permanent grass in the whole county. It is probably due to the large number of steep unploughable fields and to a major concentration on dairying using a higher than normal proportion

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of purchased feedingstuffs. Many breeds of cattle are kept : Devons, Shorthorns, Friesians, Ayrshires and Channel Island breeds are all found, and there has been a large amount of cross-breeding.

*Area V. South and South-East Devon.* This area could perhaps be divided into several districts but the boundaries cannot be clearly defined. Around Exeter on the red soils there is a high proportion of arable land growing crops for sale, but meat and milk production are very important. Around Moretonhampstead there is considerable emphasis on potato growing. In South Devon dairying is common with varying amounts of grain growing, especially in the extreme south. South Devon cattle are easily the most popular breed, while Longwool and South Devon sheep are the most numerous.

*Area VI. Dartmoor.* The Forest of Dartmoor and the adjoining Commons amount to some 120,000 acres of rough grazing. The regular stock are mainly Scotch Blackface sheep and Galloway cattle, while large numbers of Devon and South Devon cattle, Dartmoor, Exmoor Horn and other breeds or crosses of sheep are put on the moor in summer. The rights and privileges of the commoners date back several hundred years and, having been handed down by word of mouth, are now rather ill-defined. The area has recently been declared a National Park in order to preserve its great scenic attractions.

*Horticultural Areas.* Market gardening is concentrated into three major areas ; although there are other less important districts, and a considerable area of vegetables is grown on farms as part of the ordinary rotation. In the Exeter-Dawlish district a wide variety of crops is grown, of which strawberries, violets and anemones are probably the most important. The Tamar Valley, with its steep sheltered slopes, is renowned for its soft fruit, daffodils and early potatoes. Combe Martin is a most remarkable area, comprising a narrow, steeply-sided valley with small enclosures and few holdings of more than 2 acres—all set in the midst of a rather bleak, exposed district bordering on Exmoor. It produces very early strawberries as its main enterprise, using early potatoes to give a rotation.

**Milk and Beef** The pattern of the six type groups mentioned above is of fairly recent origin, as there have been major changes in farming in the county during the past twenty years or so. Farms which were largely grass in the depression years have been ploughed extensively during the war, and in spite of the reversion to grass during the last eight years, the tillage area is still nearly 84,000 acres above the 1939 level.

Butter and cheese-making, combined with the rearing of store cattle, have given way to the production of liquid milk, and concurrently there has been a great levelling out in the seasonal variations of milk output. Almost 11,000 of the 17,750 farms in the county are now registered for milk production, and liquid milk is produced on all except a hundred or so isolated farms selling cream under licence. A few farmers have reverted to the traditional practice of rearing good beef stores for fattening elsewhere, but there are many obstacles in the way of any major change. On the smaller farms store production is not a sufficiently intensive enterprise to give the farmer a reasonable income, and yet many are not suited to dairying owing to soil conditions or poor buildings. This problem is particularly acute on the Culm Measure clays, and one school of thought maintains that these holdings are never likely to be economic and that farms should be combined to make economic units ; another holds that the poorest parts should be

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utilized for forestry, while others advocate large-scale capital improvements such as drainage, road-making, etc., to facilitate an intensification of output.

Grants under the Hill Farming Act, and now the Livestock Rearing Act, are helping towards the improvement of many store stock farms over quite a large area in the county. The comprehensive schemes involving improvements both to the fixed equipment and to the land itself should assist in the current drive for more meat from home-grown food. These schemes have thrown into prominence the inadequate and unsatisfactory buildings which are found only too often on all types of farms in this county.

The details of this short article do no more than sketch the complexities of the structure of agriculture in Devon, and little mention of recent trends and development has been possible. Those interested, however, will be able to obtain at the Ministry's stand at the Royal Show a booklet which will give them more of the background to the farming of the county and will illustrate its characteristics in a series of maps<sup>(2)</sup>. This has been prepared by a small unofficial body, known as the Devon Agriculture Study Group, whose aim is to collect and present the data pertaining to the farming industry which is now so widely dispersed and frequently only exists in a form which makes its interpretation impossible.

### References

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## THE GRASSLAND OF DEVON

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DEVON is a county of contrasts in climate, soil and topography. The rainfall varies from 30 inches at Exmouth to over 80 inches in the heart of Dartmoor, the soil from a rich, friable sandstone to a cold, grey clay, whilst two rugged coastlines and amethyst blue seas contrast with the high, gaunt moorlands of Dartmoor and Exmoor and rivers of indescribable beauty winding through deep-cut, wooded valleys. The county is unquestionably one of great scenic beauty and the abundant rainfall and warm air promote a growth of vegetation of semi-tropical luxuriance. This is particularly noticeable in the case of grassland, which carries a rich green colour and a lustiness of growth unbelievable to farmers from the drier, colder parts of Britain, who can only achieve a near approach to rich grass growth by much patient labour and a not inconsiderable expenditure on fertilizers. With this richness of the grassland one also finds a wealth of flourishing trees, and the characteristic earth banks of the fields teem with an immense variety of flowers and plant life. For the botanist, such riotous growth represents a paradise on earth ; for the farmer a weed problem of great complexity.

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As may well be imagined, Devon is pre-eminently a grassland county. Few parishes have less than one-quarter of the land under permanent grass, and the majority have at least a half, if not more, of the land unploughed. The importance of the grass crop in the farming economy can be clearly seen from the 1951 Agricultural Returns :

	<i>Total Area (acres)</i>
Crops and grass .. . . . .	1,139,355
Permanent grass .. . . . .	611,515
Rotation grass .. . . . .	222,122
Rough grazing .. . . . .	169,837

But in this county of farming extremes, where one can pass from farms at sea level to those at more than 1,200 feet in a matter of a few miles, it is only to be anticipated that comparable extremes exist in the grassland. So, the verdant productiveness of the lowlands contrast with the stark paucity of the moorland grazings, as does the warm, red earth of the Red Sandstone with the cold, grey hunger of the Mudstones. To be of use to man, grass must be utilized by livestock, and so, as might be expected, this high acreage of land under turf is paralleled by many hooves, as shown by the statistics :

Total cattle .. . . . .	411,624
Total sheep .. . . . .	764,402

Thus the farming of Devon is mostly concerned with livestock production based predominantly on grass and grassland products : verily a county of supreme importance to this modern meat-starved populace.

**From Natural to Cultivated Grass** But what of the grass ? Dr. William Davies, in his survey of the grassland of England and Wales\*, showed that ordinary *Agrostis* pastures occupied a large proportion of the whole area of Devon grassland and whilst on the more fertile land and with better management a number of fields contained perennial ryegrass in appreciable quantity, in the main the *Agrostis* was associated with fescue and/or rushes and/or Yorkshire and Soft Fog, with a varied assortment of miscellaneous inferior plants in addition. The heart of the county is the great Vale of the Exe, with its rich, unbelievably red soils, extending from Tiverton to Exmouth, and along the coast to Torbay, and here Davies records selected areas in which perennial ryegrass contributed 15 to 30 per cent of the herbage, and cocksfoot, timothy, foxtail, fescue and crested dogtail were present in appreciable amounts, together with the clovers.

The needs of war-time changed the pattern of farming in many parts of Devon from livestock rearing, based on "natural" grass, to the production and sale of liquid milk, demanding "cultivated" grass. So there has been a considerable increase in the number of cattle of the pure dairy breeds, whilst vast acreages of permanent grassland have been ploughed for rotational cropping or direct reseeding. The greatest proportion of temporary grass is found in the Bideford and Hartland districts of North Devon, where, in many parishes, no less than one-third of the land is in ley. The eastern half of the county contains the highest proportion of permanent grass, due to the steep slopes found there and the fact that the soil is mainly heavy and difficult to plough but capable of retaining a respectable sward for many years. The acreage of rotation grass today is almost exactly what it was fifty years ago. Silage and dried grass now compete with hay as important

\*Grassland Map of England and Wales. WILLIAM DAVIES. *J. Min. Agric.*, 1941, 48, 112.

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sources of winter food, whereas hay, not so long ago, reigned supreme. It is true the pattern of farming could not wholly change, for the limitations imposed by soil, climate and topography still leave the farming community with the problem of production on Dartmoor, Exmoor and the Culm Measures.

It will be interesting for visitors to the Royal Show to compare the Devon pastures through which they pass with those of their own holdings, and some botanical analyses of typical type pastures are given below for this purpose :

**Botanical Analyses of some typical Devon Pastures**

Percentage of Species	Dairy Pasture	Good Fattening Pasture	Sheep Pasture (Dartmoor)	Low Lying Pasture subject to Flooding	Under-Stocked Pasture	Well-Stocked Pasture
Ryegrass	23	28			2	14
Cocksfoot	4	11				2
Timothy	1	6				
Rough-stalked meadow grass	8	5				6
Crested dogstail	8	4			14	8
Yorkshire Fog	8		10	10	23	8
Bent	4	8	40	58	44	30
Fine-leaved fescue					4	
White clover	16	10	8	3	4	20
Red clover and other legumes	4			8		
Moss			12		2	
Woodrush			10			
Buttercup				13	3	3
Thistles				4	2	2
Other species	24	28	20	4	2	7
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

**The Sun and the Rain** One has to farm in Devon to fully appreciate the difficulties imposed by the growth-promoting conditions. From the sunshine and moderate rainfall of South Devon (around 35 inches at Newton Abbot), rainfall increases at the rate of 1 inch for every mile northwards on to Dartmoor, which reaches 50 inches or more. The real problem derives from the manner in which this rainfall is evenly spaced over the year, thus conservation, whether in the form of hay, silage or dried grass, has ever-attendant difficulties which occur in other counties only in exceptional years. Because growth is so rapid, the need for high stocking per acre is paramount if the herbage is to be consumed at its maximum feeding value. Yet this is not always easy in spite of the use of electric fences, for even in the height of summer it is not unusual to experience severe poaching by the treading of the stock on land too wet to carry them. Then again, the high rainfall involves severe leaching of nitrogen in the soil, and to secure maximum output of herbage recourse to an expensive fertilizing programme is inevitable.

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By reason of the warm weather enjoyed in South Devon until late in the autumn and during most winters, the growth of grass, though slowing down after October, is still appreciable in November and December—and frequently in the early part of the New Year. There is, therefore, a natural inclination on the part of farmers to leave their stock out, especially in these days of high labour costs. Yet this so frequently results in heavy poaching and delayed growth in spring that, in the writer's view, at least, it is justifiable to incur the added expense of wintering the stock indoors. By so doing the full benefit of the early spring growth is secured by avoiding mechanical damage to the turf. Thus on the College Farm, simple, cheap yards have been constructed to house all the cattle from November until late April. Pit silos and hay-ricks adjoining the yards enable the feeding to be carried out with the minimum of time and expense. Experience indicates that by this practice one secures more economical feeding, greater comfort of the animals, which thrive in consequence, and, above all, a marked improvement in the pastures. Quite apart from the mechanical destruction of the grass plants caused by grazing when soil conditions are unsuitable, poaching promotes the development of weeds, and observations show a marked increase in the buttercup and Yorkshire Fog population. The question of poaching is the subject of a detailed investigation on the College Farm at the present time.

The peculiar geographical position of Devon has undoubtedly been partly responsible for the heterogeneity of its farming systems. The county has only a small land frontier and this has, in the past, given rise to an insular outlook. Within the county itself this isolation has been accentuated, the separation of valley from valley and district from district being inevitably reflected in the numerous local breeds of livestock, systems of farming and of grassland and grassland management. In the last fifteen years a revolution has been taking place in the farming of the county and, indeed, of the South-West, and the all-round rise in technical and economic efficiency is most marked. But it is well to remember that the revolution has come later to these parts than to many districts of England situated nearer to large centres of population and served by excellent transport facilities. And with this revolution has come the realization that grass is a crop needing to be farmed as any other crop of great value, and, above all, that one must plough, fertilize and sow for grass. Excellent pioneer work was effected by Colin Ross and his colleagues in pre-war days, and this was speeded up by the needs of war, but in all probability history will record that it is the needs of the post-war, dollar-famine era which has given the desired urgency to the work.

**Dartmoor and Exmoor** Dartmoor, which accounts for some 130,000 acres, shaped as an ellipse in the centre of the southern half of the county, is one vast open-grazing. The typical moorland farms lie in sheltered valleys and are surrounded by numerous small, stone-walled enclosures or fields bounded by hedge banks. These fields are seldom more than a couple of acres in size and are known locally as "Borough Acres," being survivals of Saxon times. The soil is generally thin and hungry, inherently short of lime, phosphate and potash, and the herbage typical of such conditions, especially when allied to serious overstocking. In the main, it consists of five-leaved fescue and bent, with some small amount of white clover. Given adequate and correct fertilizing, the pastures are responsive. In many cases grassland improvement has made possible milk production

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with its attraction of a regular income, in contrast with the traditional system where the sale of store sheep, store cattle and wool was the only source of income. In recent years Galloway cattle have been introduced, running on the moor all the year round with perhaps a little hay in the winter to supplement what they can forage for themselves. Grassland improvement in these areas can produce spectacular results and is an essential need to secure more store stock. Here is a vast potential rearing ground for the future meat supplies so badly needed in this country. The large number of ponies which roam the moor give rise to serious problems of grassland management, for any area improved is apt to be grossly over-grazed and regression is rapid. Unfortunately, there is no single body to act for the Commoners as a whole, and no control over the practice of an individual grazier can be exercised. The factors limiting any considerable grassland improvement on Dartmoor farms are undoubtedly the lack of the necessary tools, the capital, labour, and essential supplies.

In contrast with Dartmoor, only one-third of Exmoor is in Devon, and the proportion of unenclosed common land is small. Broadly speaking, the farms are larger than those of Dartmoor and a bigger proportion of land is ploughed and put through a rotation before being laid away to grass again. The cattle are mainly "Red Rubies," and on many farms Devon Closewools and Cheviots are kept, though the Exmoor Horn is the favourite breed. Since neither the Devon cattle nor the Exmoor Horns can be wintered out like the Galloways or Blackface sheep, the provision of adequate winter fodder is an urgent need. Thus grassland improvement and fodder conservation are vital tasks in securing economic returns, and, as a result, rejuvenation of the existing sward by appropriate mechanical and manurial treatment, and by ploughing and direct reseeding, have been carried out on an extensive scale. Costings show such improvement to be financially sound. Thus on one farm in the Lynton area, lying above 1,000 feet, with an annual rainfall of 50–60 inches, and surrounded by moorland, over 140 acres have been ploughed and reseeded since 1946. The mixture used very satisfactorily under these exacting conditions is :

	<i>lb. per acre</i>
Italian ryegrass .. .. .. .. ..	10
Perennial ryegrass S.23 .. .. .. .. ..	4
Devon Eaver ryegrass .. .. .. .. ..	4
Perennial ryegrass (Commercial) .. .. .. .. ..	20
White clover (New Zealand) .. .. .. .. ..	1
Wild white clover S.184 .. .. .. .. ..	½
	<hr/> <b>39½</b>

**An Example of Seeding** This mixture raises the interesting issue of seed rate. Whilst the fashion today is for low rates of seeding and frequently only one grass and one clover is included, such mixtures have not proved so satisfactory under the higher rainfall and good growing weather of Devon. Light seedings invariably suffer from severe weed infestations, and especially is this true with those species of grass which are slow to become established. It may be more expensive to use heavy seed rates and theoretically it may be unnecessary, but practice confirms the wisdom of being old-fashioned, at least in this respect in Devon. In confirmation of this it is interesting to note that on one of the best managed farms in the county, covering some 1,900 acres and where 200 cattle are fattened on grass each year, the most successful seeds mixture is as over :

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	<i>lb. per acre</i>
Perennial ryegrass (Commercial) .....	2
Perennial ryegrass S.23 .....	2
Perennial ryegrass Devon Eaver .....	2
Short-rotation ryegrass .....	3
Cocksfoot S.143 .....	5
Cocksfoot S.26 .....	5
Timothy (Commercial) .....	3
Timothy S.51 .....	3
White clover S.100 .....	2
Wild white clover .....	1

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To many, the name Devon Eaver ryegrass may be unfamiliar. Devon Eaver (apparently a form of the French "wraie," darnel) is the name given to a local type of perennial ryegrass which combines earliness with a leafy persistent character. There is evidence of considerable production of Devon Eaver seed in the Sampford Courtenay area during the latter part of last century, but this had almost completely died out, owing probably to the low standard of purity attained with cleaning by hand-sieves on the farm, and also to confusion with the imported commercial ryegrass. Work by F. R. Horne during the 1930s led to its revival, seed being obtained from an old pasture known to have been seeded down about 1900 with Devon Eaver. Commercial production of the seed is now carried on by the Seeds Specialist Branch of the Devon N.F.U. under a certification scheme approved by the National Institute of Agricultural Botany, mother seed being still obtained from the old pasture in the Sampford Courtenay area, and multiplied up for two or three generations in other parts of the county. Seed is also sent to Northern Ireland for multiplication there. Individual spaced-plant trials of the various sub-stocks and generations are in progress at Seale-Hayne College, and a trial including Devon Eaver and the other perennial ryegrass strains available in the county is being laid down this year in co-operation with the National Institute of Agricultural Botany.

The problem of weeds in permanent pasture is even more acute. Fortunately, the introduction of the new selective herbicides of the MCPA type has now placed in the hands of the grassland farmer a powerful weapon with which to combat buttercup, rushes and docks, the denizens of so many Devon pastures for far too long. More and more of the old banks are disappearing, to be replaced by the electric fence, and as the banks are eliminated potent sources of weed infestation disappear also.

**Potential in Grass** To sum up, Devon possesses a vast and rich potential in its grassland. That potential, however, needs to be exploited to a far greater extent than it is today to meet the needs of the future. The verdancy of the pastures often gives a false sense of productivity, and recording has indicated how disappointing outwardly good pastures can be. Thus the ploughable poor pastures must be replaced by vigorous leys, production of herbage must be raised to a maximum by the wise and generous use of fertilizers, waste in the form of weeds must be eliminated, poaching minimized, whilst the utilization of nature's supreme gift to farmers must be raised to a level of super-excellence. There must be a greater use of electric fencing to utilize the grass to best advantage. The acreage of hay should be reduced to a minimum to limit the risk of weather damage in this difficult climate. More tripoding of hay must be carried out. Where grass drying plants are available, either on individual farms or at communal centres, they must be fully used, and, above all, for the feeding of the cattle and sheep in the winter much more use must be made of silage.

## THE PROBLEM OF EXMOOR

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**E**XMOOR is an upland area in West Somerset and East Devon running up to 1,500 feet ; only a very small part is higher than this, but one must not forget Dunkery Beacon, which rises to over 1,700 feet. It is of course the country of the Doones, that family of outlaws of whom Lorna Doone was the heroine of Blackmore's great romantic novel. The story throws some light upon the region as it existed in the time of Judge Jefferys and the Bloody Assize. The hero, John Ridd, was a yeoman son of an Exmoor farmer who farmed "the best and largest of the three farms into which our parish (of Oare) is divided (or rather the cultured part thereof)."

The climate is difficult ; it is an area of heavy rainfall and frequent mists, so that both the hay and the corn harvests are several weeks later than in the neighbouring lowland areas, and the seasons are more "catchy." From time to time the area is swept by heavy snowstorms, resulting in heavy loss of livestock ; one of the worst of these for many years was that of 1947.

The most recent survey of Exmoor, or at least of the major part of it, was undertaken in 1948 by the Agricultural Economics Department of the University of Bristol<sup>(1)</sup>. At that time a great deal of interest was being shown by farmers, agricultural scientists and the Ministry of Agriculture in the amount of "marginal" land in various parts of the country, and Exmoor was considered to be one of these areas. We need not attempt here a lengthy explanation or definition of the term "marginal" nor discuss at what point such an area would be classed either as "sub-" or "supra-marginal". The essential point is that such areas were considered worthy of special financial assistance so that they might contribute something more than they had done to the country's production of food, and at the same time give a rather higher income to those farming it.

During the war of 1939-45 Exmoor was also surveyed as part of the National Farm Survey undertaken over the whole of England and Wales by the County War Agricultural Executive Committees.

**Out of Scrub and Forest** An extremely interesting account<sup>(2)</sup> of the development of a part of the area during the early nineteenth century, given by Orwin, shows how some of the present-day farms were carved out of the tangled scrub and forest land that had hitherto existed. The pioneer work of reclamation and development by the Knights, father and son, is, in effect, simply one of the stories of the enclosure of land that had been occurring in different parts of the country for several centuries.

In his preface Orwin says :

"Although the enclosure and settlement of Exmoor Forest presented problems of exceptional difficulty, the venture is typical in many ways of the enterprise of men of wealth, all over England, during the industrial revolution, directed towards the development of the resources of the soil. . . . No area could provide a better illustration of such work than Exmoor. Except for one small farm, its twenty thousand acres was a complete waste, untouched by man. Except for the one farm-house, there was no habitation upon it ; except for a few ancient trackways, it was untraversed. It was unfenced, its confines being marked by stones, barrows, trees, and streams;

## THE PROBLEM OF EXMOOR

it was extra-parochial, and it possessed no social institutions of any kind, except the Swaincote Court and the inn-keeper's licence held by the tenant of the farm.

"From the construction of the boundary wall and the metalling of the old trackways, the story of its reclamation proceeds to the breaking of the soil, first with ox-teams, then with horses, and later with steam tackle. There were vain attempts at corn-growing in an impossible climate, by the owner, later, at mixed farming and dairying by tenants from the more fertile farm-lands of the midlands and southern counties, who took up the new farms and homesteads created on the Forest. They came and went, and the development of Exmoor went on, by the process of trial and error, till the time arrived when a farming system adapted to the potentialities of the locality had been evolved at last, and native farmers came in to occupy the holdings created by others at an expenditure of so much toil and money.

"There is the foundation of a great sheep-ranching enterprise—probably unique in England—on the unimproved portions of the Forest. The building of a village is seen, and the evolution of a civil and ecclesiastical parish, the largest in Somerset, out of what was once a wilderness. There is also a brief interlude during which it was sought to develop the resources of the property in minerals."

The term "forest" is not used here in the ordinary sense of a forest of trees but a mixture of trees and scrub in varying stages of growth and decay. Outside this particular "forest" area there are, of course, numerous towns and villages, some with a history dating back to Saxon and Roman times.

In sporting circles, Exmoor has a great reputation as an area for stag, fox and otter hunting. But two world wars, with an agricultural depression between them, and a present-day austerity, have put hunting very much in the background.

During recent years, from the beginning of the twentieth century, it has become a favourite holiday and tourist region, the growth in the number of people visiting it having expanded with the improvements in road and rail transport. Indeed the accommodation of summer visitors in the farm-houses and cottages did a great deal to supplement the low incomes of farmers and other workers during the depression of the 1930s.

**Farming on the Moor** A good deal of the land of Exmoor is still in rough grazings, either in sole or in common occupation. Although the exigencies of war demanded that more land be put under the plough for the production of crops for human consumption, there was little appreciable difference in the area of rough grazings. Approximately only one-fifth of Exmoor is under tillage, about one-quarter is under rotation grass, and the remaining half is under permanent grass of varying quality. Ley farming is therefore by no means unknown on Exmoor, and the movement in this direction was encouraged during the war of 1939–45.

Modern farming, however, requires a certain degree of mechanization, and in order to use machines economically, fields should be of a reasonable size, shape and slope. Unfortunately, Exmoor farms are often at a disadvantage in all three when comparison is made with lowland farms. The Bristol Survey showed that on 300 farms having an average size of 170 acres, the smallest farms had the smallest fields. Thus farms between 20 and 50 acres had half their area in fields of less than four acres each, and more than three-quarters of the farm area had fields of less than 7 acres. Even the large farms of 500 acres and over had nearly half their area in fields of under

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7 acres. It is a characteristic of the region, too, that fields are nearly everywhere bounded by thick banks of earth surmounted by hedges of many years' standing. Small fields are generally recognized as being better for the efficient control of grazing of livestock, although in less exposed areas smaller hedges or wire fences will serve the purpose. However, many Exmoor farmers agree that although on their exposed fields, banks and hedges are necessary as shelter for crops and livestock, a certain amount of bulldozing could be done so that machinery could be used more economically in cultivation work, and the cost of maintaining the banks and trimming the hedges could be reduced.

On the other hand, some of the open common land until recently could not be stocked with cattle and sheep because of the neglect of tourists to shut the gates when walking or driving on the public roads which traverse them. The only solution seemed to be the construction of grids at the gateways and, after some pressure by the local farmers, these have recently been installed so that the common land is now beginning once more to carry its full complement of stocking.

Exmoor has never been a milk-producing region, but the rapid increase in the price of milk during the war, and the discouragement of cattle and sheep farming, made many Exmoor farmers milk-conscious. Provided they could produce milk, no matter how small the quantity per farm, and no matter how inaccessible the farms were, the lorries of the milk-buying firms would pick it up regardless of transport costs and difficulties. During the war the County War Agricultural Executive Committee required a certain area of wheat to be grown, and themselves ploughed up fairly extensive areas.

Since the end of the war, however, the emphasis has changed considerably. Because the lowland milk-producing areas are now able to meet all consumer-demands for milk, there is not the need to send lorries into Exmoor to pick up a few gallons from these isolated farms, although of course it is still done where a farm decides to sell milk.

A further problem for Exmoor farmers in connection with milk production, however, arises from the greater emphasis now being placed upon properly built and equipped cowsheds, and upon the desirability of producing milk of T.T. standard. This is not to say that T.T. milk cannot be produced on Exmoor but merely to say that in many cases the outlay of capital on suitable stock and equipment is probably more than many farmers are prepared to face. In mentioning this swing towards milk production, it is not intended to imply that the farmer thereby obtains a larger income, for the Bristol Survey showed that often the reverse was the case after the war, but the regular receipt of the monthly cheque from the Milk Marketing Board gave the farmer, and especially his wife, a regular flow of cash with which to meet the household bills as well as those arising on the farm.

**Tradition and Trends** Generally speaking, however, Exmoor farmers are by inclination and tradition breeders of cattle and sheep, for which they are known throughout the world. The Devon breed of cattle is predominant, and the majority are pure-bred; the next largest class is of Devon-Shorthorn crossbreds. Taken together, the pure and cross-bred Devons comprise nearly all the cattle on Exmoor, for there are very few herds of other breeds or crosses.

The sheep are predominantly Exmoor Horn, either pure-bred or crossed with Closewool which is hornless. Indeed the Exmoor Horn  $\times$  Closewool seems to be rather more favoured than the pure Exmoor Horn. The pure

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Closewool, however, forms a serious rival to the Exmoor Horn in some parts of the region. Strictly speaking, it is derived from the Exmoor Horn and the Devon Longwool and has its own Flock Book dating from 1923, although it had been established for many years before that date. In areas which do not breed their own sheep replacements, there is some use of the Hampshire and Dorset Down rams.

Traditionally, then, Exmoor is a region of cattle and sheep production, and in more leisurely times and when transport by road and rail was so much more difficult than it is today, the Exmoor farmer was perfectly content with something not much better than subsistence farming. But now that price movements in agriculture are affected not solely by the play of demand and supply in the local markets, but by the edict of Parliament, the Exmoor farmer, like his fellows elsewhere, plans and adjusts his farming to keep in step as much as possible with these price movements. In other words, although in several quarters it is considered that the Exmoor farmer should be induced to curtail or forsake milk production—an innovation for the traditional livestock farming—it is agreed that the burden of proof lies upon those who suggest this reorientation, and today this means showing him that he will make a larger income or profit for himself if he does in fact replan his farming organization in a rather different direction. But forecasting in economics is always extremely difficult. It is true that the findings of the February Price Reviews guarantee prices for livestock up to three or four years ahead, and for that relatively short period the farmer knows his selling prices. But profits depend not upon selling prices but upon the difference between them and the costs or expenses in the production of a particular output, and these costs are not easy to forecast.

No one can expect Exmoor farms to continue producing livestock instead of milk simply because this is supposed to be their job or the area in some way is supposed to be more suited to such farming. On the other hand, no one, neither a farmer nor the public generally, can be expected to supply a large amount of capital to be sunk in the area unless there is a reasonable possibility that it will not only enable the farmer to improve his farm and his profits, but at the same time that the capital so invested will earn a rate of interest however small.

That is the problem to which agricultural scientists and economists have to apply themselves in this area, and they have to show the farmers on Exmoor that a certain type of farming is more advantageous financially than another. It is of little use saying, for instance, that the farmers ought to keep to cattle rearing and ought to go in for multiple calf-rearing or ought to grow certain crops, unless it can be shown that it will pay them in cash to do so.

As a temporary expedient, farmers on Exmoor are receiving subsidies for hill sheep and cattle and for calf-rearing. In addition, a number of them are having part of their costs reimbursed under the Marginal Production Scheme.

Such financial assistance, together with better prices for cattle and sheep, will do a great deal to improve the standard of living of farmers on Exmoor, but the long-period aspect must be borne in mind. One major problem is the size of farm for the type of farming carried on it, and this, incidentally, is a problem that is applicable to areas other than Exmoor. There is a growing and understandable tendency for farmers and others to look at farming, not from the point of view of what income is possible from a certain size farm, but what size of farm is necessary in order to be reasonably certain of obtain-

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ing a satisfactory income or standard of living. So on Exmoor the problem, if the area is to remain a cattle and sheep rearing area, and if indefinite reliance is not to be placed upon various subsidies, is "What is the minimum size of farm that would give this income, and what should be done in those numerous cases where the size of farm is obviously too small?" The Bristol Survey of 1948-49, which was based upon a number of farm accounts, showed that the smaller Exmoor farms yielded less than a farm worker's wage to the farmer, and even today the position is very little better since costs of production tend to rise as fast as any improvement in selling prices.

The problem is difficult ; it is not merely an economic one, but a social one as well.

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## CATTLE BREEDING AND IMPROVEMENT IN THE SOUTH-WEST

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**B**ECAUSE of its topography and climate, the South-West has from time immemorial been outstanding in stock and stock products rather than crop production. Butter and clotted cream have been the order of the day, with store cattle trekking by road in the "good old days" for finishing on eastern and south-eastern pastures. The growth of seaside resorts on an extensive coastline has inevitably created a lucrative trade for cream, milk, butter, eggs and market-garden produce, and so influenced the trends of farming in Devon and Cornwall.

The prolonged agricultural depression after the 1914-18 war also materially influenced store stock farmers to turn over to the sale of liquid milk, and this was accelerated to a marked degree during the second world war by the change in price emphasis and increased hill and marginal farming enterprise.

Broadly speaking, the pattern of stock breeding before this was confined to three largely indigenous breeds—breeds which had been developed by trial and error throughout many generations. Mainly they are located in three clearly defined areas : Devons (Ruby Reds), a beef breed in North Devon, North-East Cornwall and West Somerset; the South Devons, a "triple-purpose" breed (milk, high butter fats and beef) in South Devon and South-East Cornwall ; and Guernseys in West Cornwall and Isles of Scilly. With the moorland and marginal farmer turning over to milk during the war years, the trend of stock development has increased the population of cattle—mainly dairy breeds ; sheep, on the other hand, have decreased. Cornwall now carries about 35,000 and Devon 72,000 more cattle than in 1939—a stocking of 2.25 and 2.75 acres per head, respectively. The heaviest stocking is by Guernseys in West Cornwall.

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Pre-war practice was to retain the steer calves of both the Devon and South Devon breeds for rearing on to sell as stores at about two years old, but by 1943, too many steer calves, beef-type, were being sold at birth for slaughter. The greater proportion of them would have been sired by first-class attested Premium Bulls under the Ministry of Agriculture's Livestock Improvement Scheme.

The Ministry took steps, from 1943 onwards, through the Committees to halt this wastage of prospective beef stock by inaugurating (1) a Calf Salvaging Scheme, under which beef-type calves were railed to the order of farmers, particularly in the midland, eastern and south-eastern counties, and (2) a Multiple Calf Rearing Scheme, under which 10-12 beef-type calves of Devon and South Devon breeds were reared per cow each year. The aim of the latter was to replace on marginal farms the uneconomic system of rearing only one calf per cow. With a reversion to store stock production, this practice is now becoming widespread on suitable farms, and particularly so since the calf subsidy scheme was introduced. Under it about 100,000 calves per year have been passed for subsidy in Devon and Cornwall.

**Improvement Measures** The means of improving the stock of the many small farmers came in 1914 with the Ministry's Premium Bull Scheme. Today, upwards of 300 Beef Premium Bull Societies are operating in Devon and Cornwall. Many of the premium bulls, proven in their beef progeny and in the show-ring, are either snapped up by breeders or continued for a second (in some cases a third) period of three years with a different Society. On the milk side, there has been a marked advance in the number of recorded and butterfat-tested herds, and in the percentage of bulls holding dairy licences.

In the Isles of Scilly all herds are attested. Cornish and Devon farmers got away to a slow start, but are now making progress in becoming attested. Unfortunately, many of the Beef Premium Bull Societies which had served members so well and so long are being temporarily disbanded because members are not becoming attested at the same time as the premium bull owner. Perhaps initially, farmers did not realize in their hurry to turn over to war-time milk production that frequently their purchased dairy cows were the "cast-offs" from attested herds in other parts of the country.

Through the foresight of Messrs. G. Hayter-Hames and L. K. Elmhurst, an A.I. centre was located in 1944 at Dartington Hall, Totnes, for the improvement of South Devon Cattle. The centre was particularly fortunate in securing two old proven bulls for their first sires. In consequence, membership multiplied so rapidly that, with Ministry approval, sub-centres were opened at Liskeard and Tavistock. An arrangement was also made with the M.M.B. for an interchange of South Devon bulls for the Praze, West Cornish centre.

Soon after, Messrs. Horlicks opened a centre on the Devon border at Ilminster, which served a considerable area in East Devon and West Dorset, but later, when M.M.B. centres and sub-centres were established, a mutually agreed readjustment of boundaries took place. When the Milk Marketing Board started operations they quickly erected centres at Torrington for North and Mid-Devon, Honiton Clyst for East Devon, and at Praze in West Cornwall. They next covered parts not served by Dartington Hall Centre by a series of sub-centres all linked with the nearest main centres. In addition, as every breed of bull required was not kept at each centre, they operated a successful grid system for keeping each centre and sub-centre



N.A.S. Sub-Centre, Starcross



N.A.S. Laboratory at Bracken Hill

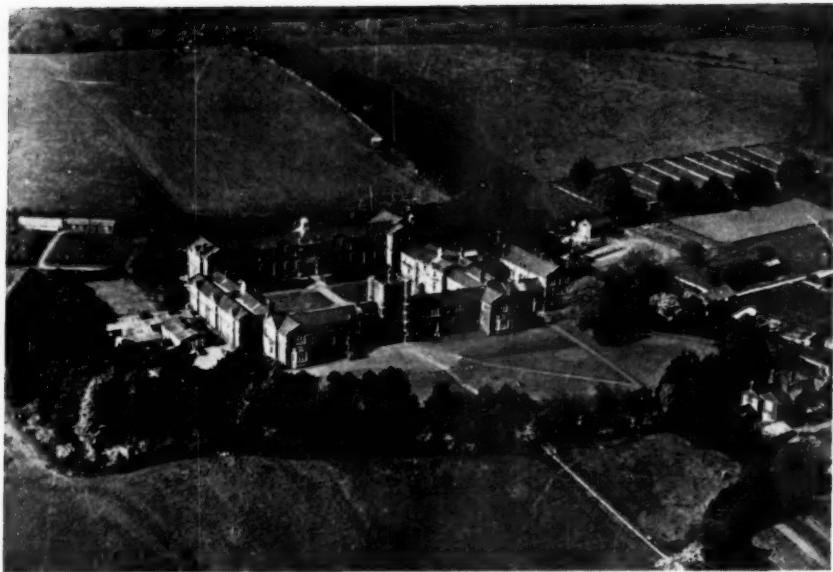


Photo : *Aero Pictorial Ltd.*

**Seale-Hayne Agricultural College**



Photo : *Western Morning News*

**Devon landscape from the Exeter—Moretonhampstead road, showing Dartmoor in the background**



Photo : Farmer and Stock-Breeder



Photo : Nicholas Home Ltd.

#### SOUTH DEVONS FOR BEEF AND MILK

South Devon bull and cow with typical heifer and steer



Photo : Farmer and Stock-Breeder



#### DEVONS FOR BEEF

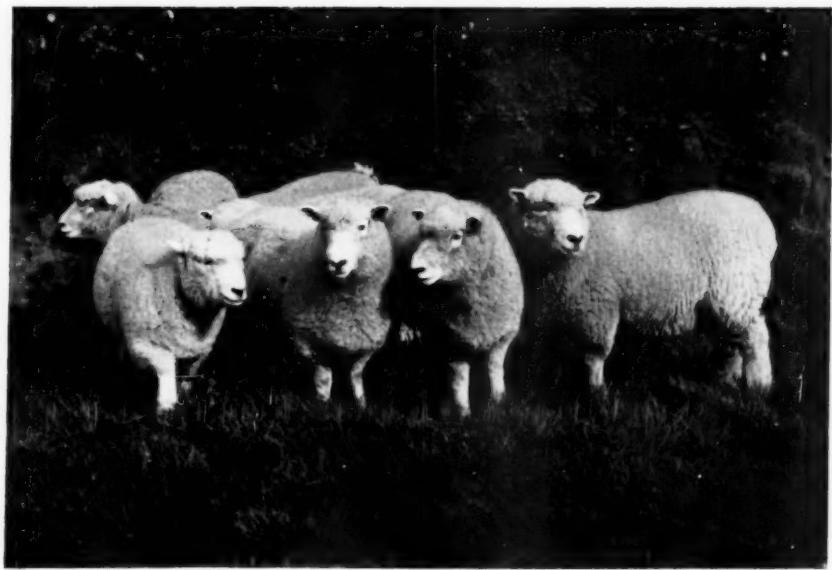
Devon bull and cow with typical steer





Photo: J. I. Brimble

Widdecombe, Dartmoor



Devon Closewools, under a typical North Devon bank



Photo : R. Kingsley Taylor

**Exmoor Horns on Exmoor**



Photo : Halcroft Studio

**South Devon ewes**



**Pigs in Cornwall**

*Top :* Insulated farrowing huts and runs

*Bottom :* Sows grazing on marginal land, 1,000 feet above sea-level



*Left :* The grazing pig

*Right :* Cottager's pigs





*Top : Gathering seaweed near Mount's Bay for composting (Photo : H. L. Penhaul)*

*Centre : Packing Cornish broccoli for market (Photo : H. L. Penhaul)*

*Bottom : Early daffodils in Cornwall Photo : (Western Morning News)*

A WEST COUNTRY FARM IMPROVED (See pp. 154-6)



The yard before improvement



The same after improvements, showing new parlour and covered yard

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supplied with semen of such breeds from stations elsewhere. Readers will have some idea of the growth of this movement by the fact that the six south-western counties centres have nearly 30,000 members and service some 260,000 cows ; over 50 per cent of the cows and heifers in some districts are being serviced by A.I.—a proof of the service to the small farmer (over 15,000 in Cornwall and Devon farming under 100 and many less than 50 acres). In this development the Ministry of Agriculture has been responsible for approving the setting up of centres and sub-centres, none of which may operate except under licence from the Minister. The operations at centres and the bulls selected are subject to close inspection by the Ministry's Veterinary and Livestock Officers as appropriate, and the Department's final approval in each case depends very largely on their recommendations.

But if artificial insemination has brought its "blessings", it has also provided its problems, particularly in the early years, when it was found at the Ministry's quarterly inspections that some farmers who had turned over from Devon or South Devon breeds to dairy farming, were using semen of as many as three or more different breeds in an endeavour to establish a dairy herd. Gradually, however, indiscriminate breeding is being abandoned in favour of a herd policy.

A service being widely used in the West Country, and now available through all centres and sub-centres, is that of colour-marking beef semen for use on low-yielding dairy cows of suitable types.

The intention of placing line-bred bulls at members' disposal should facilitate the grading-up of herds to pedigree standard and so bring about uniformity of type within each herd.

Some reference is essential to the admirable work done by the local Breed Societies ; also testimony to the pioneers in livestock improvement whose foresight and labours brought their Herd Books into being. In this connection I have to confine myself to the two local breeds, but before doing so I should like to pay tribute to the excellent work of the south-western pedigree breed associations in furthering the interests of their respective breeds.

**South Devons** The origin of the South Devons is unknown. It was a breed of immense size, being famed for draught purposes, the bulls averaging about 30 and cows 20 cwt. each, but with the formation of a Herd Book in 1891 the members concentrated on retaining its high butterfat and dual-purpose qualities, at the same time refining it and increasing its milk production. It can be truly said it is a "triple-purpose" beast. The herd records compiled by National Milk Records testify to the comparatively high yields that can be obtained which, whilst admittedly lower than certain dairy breeds, are compensated, financially, since all members of this breed receive a special extra premium for milk with a minimum butter fat of 4 per cent. This breed is also at an advantage because of its grading-out weight. Most of the steer calves are run on either for sale at two years old as stores, when they may make from £50 to £60 each, or if fattened off locally they grade at an average live weight of 13-14 cwt. At the main store sale held at Ashburton in the spring and autumn, there is a keen demand by feeders for store cattle of this breed. Pedigree bull and female sales are held each year in the spring and autumn at Newton Abbot, where the buyers include exporters, A.I. centres, and prospective customers for the Premium Bull Scheme.

The successes attained by this breed with high butter fats at the Royal, Bath and West, London Dairy Show and at county shows are well known. Suffice it to say that the Society has negotiated a satisfactory settlement with

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the trade for a special premium for South Devon milk. This Society has certainly not rested on its laurels. Apart from securing the special premium for high butter fat, it inaugurated a section in its Register for foundation cows passed by its inspectors, subject to each animal having yielded 7,500 lb. as a cow or 5,000 lb. as a heifer, and more recently has published a yearly handbook setting out the yields of daughters in order to identify those bulls proving themselves by their daughter's yields.

Before leaving this breed, reference must be made to its longevity—a result, no doubt, of its capacity for consuming large quantities of good quality roughage, hay, cereals and mangolds: frequently as much as 70-112 lb. a day of the latter is fed per animal.

**Devon Cattle** The Devon Herd Book Society records with pride that it has been under Royal patronage since 1856, when the Prince Consort established a herd at Windsor, later transferred to the Duchy Home Farm, Stoke Climsland, Cornwall. In its booklet the Society deals briefly with the breed's history by indicating that its early records appear to be lost in the "mists of antiquity." If the geneticist is correct in his assumption that sires more than four generations back have little if any influence on today's cattle, then the Breed Society is wise in not wasting time on its origin, but rather, as they have done, concentrating on portraying its considerable success in the show-ring and its value as a beef carcass. Their Smithfield successes are too numerous to mention here; as is instanced by the fact that in six out of seven pre-war Smithfield Shows, Devons took the lead in providing the heaviest animal in the pure-bred Baby Beef Classes; great weight for age is the Society's claim. More recently (1949) at Birmingham Smithfield, a Devon beat all breeds and crosses for the best beast not exceeding 11 cwt., and again took senior place for the over 12 cwt. class.

During the war, when the emphasis placed on milk reduced the trade in Devon bulls, much of the remaining demand was for approved bulls for the Ministry's Premium Scheme. Further, as a result of the Calf Salvage Scheme mentioned above, many Devon calves were saved and railed to the midland and eastern counties, with the result that a marked demand for Devon stores has arisen—a demand that will only be met to its maximum when, as on the Welsh and Scottish borders, large-scale organized store cattle auctions are inaugurated for direct sale to the graziers and feeders. As a result of experience gained with stock sired by exported Devon bulls, buyers in increasing numbers, who have realized the value of the Devon for semi-tropical countries, and its foraging capabilities, are purchasing Devons for Australia, Argentina, Brazil, U.S.A., South-West Africa and other countries. In fact, it can truly be said that for this breed, which makes such excellent gains in weight for age on grass, and which cuts such a high proportion of lean meat, its best days are yet to come.

Judging by the keenness displayed by those responsible for the development of the various cattle breeds in the South-West, we need have no fear but that they will continue on the right lines, both in the interests of this country and in sustaining its good name as the source of the world's finest pedigree stock.

## SHEEP IN THE SOUTH-WEST

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THE extreme south-west of England (Devon and Cornwall) has long been famous as a stock-raising district, and in this sheep have played an important part. Devon, in addition to having produced two well-known breeds of cattle (the Devons and the South Devons), can boast no fewer than six localized breeds of sheep within its borders. The geography, climate and soil of these two counties is in such variety that each breed appears to fit well into the overall picture, although it must be admitted that there is a school of thought amongst farmers which thinks that some of these breeds could practically and profitably be merged. The pre-war sheep population of roughly one and a quarter million in Devon and Cornwall dropped sharply, of course, during the war owing to store stock producers turning over to milk, but during the last five years numbers have been climbing back steadily, if slowly, and today stand at approximately the million mark.

These various breeds have been located and developed within fairly clearly defined boundaries but, as with cattle breeds, "infiltrations" in all directions have occurred with the progress of time. On the whole, however, one can still plot geographically the respective dominant areas which contain each breed.

The six "native" breeds mentioned earlier are the South Devon, Dartmoor, (for the sake of clarity called in this article the "Improved Dartmoor"), White Face Dartmoor, Devon Longwool, Devon Closewool and Exmoor Horn—the latter, of course, being more properly associated with Somerset. Since, however, the foundation of our sheep stock is in the hills, a survey of these two counties must start with the rocky highlands of Dartmoor, Bodmin Moor and the proportionately small end of Exmoor which lies inside Devon.

Here two "imported" breeds form the basis of the sheep husbandry, at any rate so far as Dartmoor and Bodmin Moor are concerned—the Scotch Blackface and the Cheviot.

A bird's eye view, therefore, would show in broad outline the two heights of Dartmoor and Bodmin Moor dominated largely by Scotch Blackface, with a few flocks of Cheviots and Exmoors and a smaller proportion still of White Face Dartmoors. Encircling Dartmoor, one finds the bulk of the "Improved" Dartmoors, with South Devons practically solidly occupying the kindly country running from Newton Abbot through the South Hams to Plymouth, and then spreading over the whole of Cornwall except, of course, for Bodmin Moor and the dairying area west of Truro. To the east of Dartmoor the fertile Exe Vale is the stronghold of the Devon Longwools, bounded roughly to the north by a line from Tiverton to Okehampton. Finally, North Devon, given over largely to Devon Closewools, with the nearly-related Exmoor Horns in close attendance on Exmoor itself and in places throughout the area.

**Dartmoor Forest** Although an "imported" breed, Scotch Blackface sheep have been kept on Dartmoor since the beginning of the century, and since very few ewes indeed are now purchased from the North, the breed can surely claim to be acclimatized! Rams are regularly brought

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down from Scotland to maintain type. An association of Dartmoor Scotch Blackface breeders was formed over twenty-five years ago, with its own Flock Book, inspectors, earmarks, etc., and it is a real factor in furthering the interests of sheep on the Moor. Without doubt, this breed has been most successful in this tough location; indeed, together with the comparatively few Cheviots, most Commoners would admit that they are almost the only sheep which can be successfully left to fend for themselves on the Moor proper (as apart from enclosed "intakes") throughout the year. The majority of flocks are bred pure but there is a movement afoot, adopted by one or two of the more progressive moor farmers, to extend the use of Border Leicester rams to produce the well-known "Greyface" ewe. This would help to meet the wide and increasing demand in the dairy counties of the South-West for a grass ewe for mating with a suitable lowland ram to produce lamb or mutton—a market, in fact, right on Dartmoor's doorstep! The same remark applies of course, to the Cheviot ewes on the Moor—again the famous half-bred ewe would never lack a profitable market.

The Control of Rams Regulations are applied to Dartmoor under the guidance of the Devon County Agricultural Executive Committee. This is welcomed by the Commoners, first, as a means of preventing early service of ewes, and consequent loss through lambs arriving before the weather or food supply is adequate, and, secondly, through inspection of all rams, as a step towards improving the type of sheep on the Moor by eliminating inferior rams. Inspections are carried out by leading moorland sheep farmers, nominated by the various breed organizations and appointed by the Devon A.E.C.

**Bodmin Moor** The general picture on Bodmin Moor is similar to that of Dartmoor, with the Control of Rams Regulations operating under the direction of the Cornwall County Agricultural Executive Committee. The proportion of Cheviot and Exmoor Horn sheep is higher and it is of interest to note that one of the leading agriculturists on Bodmin Moor has bred his Cheviots up from Shetland ewes.

**The "Improved" Dartmoor** Although the popular name given to these sheep has been used in this article to avoid confusion, the official title is the "Dartmoor" breed. The Dartmoor Sheep Breeders' and Flock Book Association was formed in 1909. Lambs are inspected annually before acceptance in the Flock Book. There is no authentic record tracing the origin of the breed but it is generally accepted that it has been developed by selection from the original hardy Dartmoor breed. The Flock Book registrations and the membership are steadily increasing and some excellent flocks can be seen on the western perimeter of Dartmoor.

**The White Face Dartmoor** Visitors to Dartmoor will not come across many White Face in a normal journey, and, regrettably, the newly-instituted classes for them at the Royal Show have had to be cancelled as part of the foot-and-mouth disease precautions. An Association and a Flock Book were started in 1950 by a group of enthusiasts to preserve the characteristics of this ancient breed. It now has about 40 members.

As with so many of our present-day breeds of livestock, the actual origin and development of the White Face Dartmoor is lost in antiquity, but it appears that the breed was once purely white-faced and horned. The disappearance of the horns in the females (whether by out-crossing or genetic

## SHEEP IN THE SOUTH-WEST

mutation) and the appearance of speckled faces are unexplained, but there is no doubt that hardiness has been maintained, since White Face Dartmoors can live on the most exposed parts of the Moor through most of the year. Male sheep may be horned.

**The South Devon** The South Devon almost monopolizes the sheep industry throughout South Devon and Cornwall. A well-cared-for flock of these big upstanding ewes is a pleasing sight in this generous countryside. Progressive breeders are eliminating the bigger boned, grosser type of sheep and, although still big by many standards, it flourishes on good land and impresses the stranger to the breed by the 90 lb. (dead weight), firm-handling lambs at the Christmas shows.

Many commercial flocks are crossed with a Down ram to produce smaller and earlier maturing lambs. The Oxford Down ram is very popular for this purpose ; it is bigger and more suitable than some Down breeds for mating with these big ewes. It is often difficult for the passer-by to identify long-woollen flocks in South Devon and Cornwall, since there is a reasonably constant inter-crossing (apart from the pedigree flocks, of course) between South Devons, Devon Longwools and Dartmoors. In fact the earlier reference to a suggestion in some quarters of merging breeds was in connection with these three—all very similar in general type and environment. Naturally, however, this is a very controversial subject ! The Flock Book was first published in 1903.

**The Devon Longwool** Indigenous to the West, the Devon Longwool is very old in history. It is kept under a variety of conditions from the rich red land around Cullompton and Tiverton to the approaching uplands of Dartmoor. Fat lambs are produced by the majority of flocks, either as pure-breds, crossed with the other two local long-woollen breeds or with Down rams. It is a popular cross with South Devons.

**The Devon Closewool** The Devon Closewool is a comparatively modern product of the Devon breeder, evolved by crossing the Devon Longwool and Exmoor Horn breeds. The type would seem to have been reasonably fixed for over fifty years and it breeds true to type. It appears to be admirably suited to the hills of North Devon, which are not so formidable a location for livestock as Dartmoor or Exmoor, but which, nevertheless, require a sheep with a hardy background—in this case from its Exmoor forebears. It fattens so readily on the better pastures that Devon Closewool breeders would agree that in such environment more careful management is necessary to avoid over-fatness. The Flock Book was started in 1923.

Early this spring I saw an excellent large flock of Devon Closewool ewes, with their lambs, which had been running the open common on Dartmoor from June until late December. An experimental shipment in 1947 of six ewes and a ram of this breed to the University of Manitoba, Canada, promises to be successful.

Many commercial flocks are crossed with Hampshire Down, Dorset Down or Suffolk rams—a very pleasing cross.

**The Exmoor Horn** Probably better known farther "up country" than any of the other indigenous breeds, the Exmoor Horn has occupied the higher moorlands on Exmoor from time immemorial,

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both sexes being horned. There are, of course, far more Exmoor Horns in Somerset than in Devon.

Before leaving the question of distribution of breeds, mention must be made of the fairly intensive colony of Dorset Horn flocks around Exeter, particularly, south of Haldon Hill. These are undoubtedly suited to this district and the "out of season" lambs born in the autumn thrive in the easy climate and under the system of grazing-cum-arable folding practised.

This then is the general picture, but, as mentioned earlier, "infiltrations" of all kinds have occurred and one finds Kerry Hills, Cluns and even Suffolks maintained pure on the enclosed edge of Dartmoor, Devon Longwools on nearly the highest point of Bodmin Moor, and an increasing tendency for improvement in hill grazings and moorland intakes making it economically possible for the less hardy types of sheep to spread to these areas.

Most of the flocks are small—40–50 ewes being a fairly common size, and comparatively few flocks of "mongrel" ewes are seen; indeed it would be safe to say that the majority are of pure-bred ewes. Sheep husbandry on the moorland areas suffers from problems of management usually associated with such conditions, some of which it is hoped, can be smoothed out by the Livestock Rearing Act. It is generally admitted that one desirable goal would be the raising of the percentage of lambs surviving to maturity.

There are few farmers in the hills of either Devon or Cornwall who are not sheep-minded, and it only remains for this enthusiasm to spread to the remaining areas, particularly the dairying districts, for the South-West to play its full part again in providing one of Britain's biggest needs—more meat.

## PIGS IN CORNWALL

H. BURR, M.Sc.

*County Agricultural Officer, Cornwall*

**S**TORIES of the Irishman and his pig are legion and, if many of them are to be believed, there exists between the two a fine, healthy relationship based on a mutual respect bordering on affection. If the value of pigs in Cornwall is assessed in more commercial terms, it is nevertheless clear that the Cornish farmer prefers a system of husbandry in which pigs play an important part and indeed, will depart from such a system only under the necessity of a major world upheaval.

As far back as our records go, Cornwall has been regarded as a county heavily stocked with pigs. The preponderance of small farms probably accounts for this. The pig's popularity in the mining districts and the china clay country was well established in the nineteenth century when the majority of workers in these industries maintained smallholdings to augment their incomes, upon which they often struggled to support large families. The ability of the pig to consume waste from the household and to convert it rapidly into meat for the table of the hard-working miner awarded it precedence on the smallholdings over all other types of livestock.

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On the full-time holdings, too, the pig fitted in admirably with existing conditions at the turn of the century. Cornwall was predominantly a dairying county, producing butter and cream, from which industry, skim milk was a valuable and abundant by-product. The production of butter on the farms declined in the early years of this century, as milk factories sprang up all over the west. Sales of liquid milk were popular with the farmer because they gave him a more secure market than he had previously enjoyed ; his wife also welcomed this new departure which took a good deal of heavy work off her hands. The early factories concentrated on butter-making and there were, therefore, still ample supplies of separated milk available.

In the years immediately before the first World War the sale of liquid milk became more and more popular among Cornish farmers and as sales of milk increased, so the number of pigs rose, until in 1914 the pig population of Cornwall was double that of 1870. At the outbreak of war, Cornwall, with about 180 pigs per thousand acres of crops and grass, was just about twice as densely populated with pigs as was the rest of England.

**Between the Wars** The pig industry rapidly recovered from the set-backs of World War I. With an ever-expanding milk production, there was still plenty of skim milk available, and the low cost of imported grain to supplement it encouraged pig-keepers still further. Whatever may have been the overall effect on the nation's farming of the low grain prices of the 1920s, there can be no doubt that pig-keepers everywhere welcomed the situation in which they could buy unlimited quantities of good cheap cereal foods. Conversion of grain to pig-meat was, however, becoming popular the world over and we in Britain started to feel the effects of keen competition from Continental countries, particularly for the Wiltshire bacon trade. The establishment in 1933 of the Pigs Marketing Scheme gave a good deal of stability to the pig industry and it was particularly welcomed here in the West where post-war conditions had so encouraged the Cornishman's aptitude for pig-keeping that pigs were a major source of farm income. In a depressed industry it often appeared that pigs were the one bright spot. So numbers rose, until in 1935 we had almost exactly 200,000 pigs in Cornwall—about one-fifteenth of all the pigs in England. The industry remained at about this size until the second war came.

During the whole of the inter-war years this heavy population of pigs was, of course, building up a considerable store of fertility, particularly on the farms of the far west where the heaviest pig population was concentrated. The Cornish farmer, notably an opportunist, looked around for methods of cashing this fertility and began to expand his production of vegetable crops. The mild, moist winters and early springs so typical of Cornwall enabled him to enter the field almost without competitors for the production of broccoli and early potatoes. So there grew up together on many farms the sound combination of milk production, pigs and vegetables—a system designed to maintain a high intensity of stocking, high soil fertility and large sales of cash crops.

**World War II** On no system of farming can war-time conditions have had a more completely disorganizing effect than on the pig farms of Cornwall. The production of butter in the factories gave way to dispatch of liquid milk to the cities, and so the supply of separated milk stopped—almost overnight ! Gone too, was the cheap imported grain. Most of the home-grown grain was needed for the dairy herds and so it seemed that the Cornish pig industry was doomed. Numbers fell to a mere

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32,000 (1947), and pig feeding had ceased to be the exact science into which it had developed before the war. Farmers had to rely on the pig-feeding methods of their youth, when boiled potatoes and roots featured largely in the diet of pigs, supplemented by whatever grain was available.

When plans were announced for the issue of bonus rations for the production of pig-meat, the Cornish pig farmer saw a gleam of hope and he turned his full attention to pig-breeding again. Under conditions vastly different from those of pre-war days, he has built up again in the last five years until today, with 150,000 pigs, we are once more approaching the pre-war density.

### **Changes of Management and Feeding**

Compared with the pre-war days, management and feeding are now far more flexible. In order to conserve meagre food supplies for fattening, sows are kept outdoors as much as possible and obtain a considerable proportion of their diet from grazing, with some beet crowns or roots in the winter. Often they receive, until a few weeks before farrowing, little more than 1 lb. per day of meal, and have to satisfy their appetites and other requirements from grass. The success of these methods on many farms suggests that we still have much to learn of the ability of the pig to deal with grass in its diet.

The housing of breeding stock on grazing is often a rather improvised affair, making it necessary to transfer the sows to more permanent sties for farrowing. The lined pig-huts are, however, becoming more popular and are giving good results even on the high, bleak land of north-east Cornwall. In these huts sows farrow and suckle their young and appear to keep warm and healthy even in the coldest of weather, thriving as well as in permanent buildings, particularly if a hurricane lamp is hung up on frosty nights when the farrows are young. If this out-housing of sows and farrows proves generally acceptable, it is likely that the method will be harnessed to the important task in Cornwall of improving and reclaiming our considerable area of marginal land. The folding of pigs over poor grassland has an outstanding effect. Pigs are good cultivators and the highly active manure which they leave behind hastens the process of fibre-rotting, and releases fertility so necessary to the improvement and reseeding of this land. Moreover, the quick return on capital which pig-keeping can offer is attractive to the occupiers of marginal land where, often, dairying is not a practical proposition.

For store-feeding and fattening, the Lehmann system (with infinite variations) has perforce been adopted. In an area such as this where corn growing is always difficult and often unprofitable, few farms have sufficient grain to be able to fatten pigs on meal alone. Fatteners are, therefore, usually given a maximum of 3 lb. meal a day, and this is supplemented by whatever other "roughages" are available. (This is the term for the bulky foods which is always used by Mr. S. H. Eva of Camborne, well-known to pig-breeders everywhere as Chairman of the Pigs Marketing Board, who has done so much in Cornwall to show us what good use the pig can make of low dry-matter foods.)

This business of supplementing dry food with home-grown bulky foods cannot, of course, be left to chance. Anyone fattening a considerable number of pigs a year must try to arrange for a succession of crops. On the mixed farms the spring grazing is often supplemented by autumn-sown beans and vetches (cut green in spring) and by unmarketable residues of

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spring cabbage, followed by chats from the early potato crop. Purchased stock-feed potatoes are often used until autumn, when kale becomes available; this with sugar-beet crowns, mangolds and fodder beet lasts until February. Then the broccoli harvest starts, and unsaleable heads and outer leaves make good pig-feed, usually lasting until April.

The majority of feeders would, I think, prefer to return to the pre-war system of fattening solely on meal, if that were possible, but almost all admit that they have obtained much better results than they had ever hoped possible by carefully supplementing meal with bulkier foods.

In recent years, the growing of fodder beet, especially for pig-feeding, has become very popular. In 1951, no fewer than 1,200 farmers in Cornwall grew this crop—some a few rows as a trial, some considerable areas, up to 20 acres. Total yields and yields of dry matter per acre have been good and, with our long-growing season in the South-West, fodder beet can profitably be kept in the ground until near Christmas. The high dry-matter types are generally favoured (Hunsballe and Pajbjerg Rex), but many prefer the medium Otofte types which are more easily fed unsliced to young pigs, and are so much easier to harvest. Satisfactory results have been obtained from feeding up to one-third of the ration as fodder beet, provided an extra 5 per cent of good fishmeal is available.

The probability of the early introduction into the bacon industry of a carcass grading scheme is noted with considerable interest, and it will, perhaps, not be until such a scheme is fully in operation that we can judge the success or otherwise of the system of feeding into which we have been forced by post-war feedingstuff problems.

**Breeds and Breeding** It is now becoming obvious that the drastic reduction in the pig population of the war years was not carried out indiscriminately. Only the best animals were good enough to keep through those difficult years, and only the real pig enthusiasts maintained their breeding stocks. Mongrels, all too numerous before the war, were discarded, and the few pigs that were left in 1947 were mostly pure-bred and of good bacon type. On this foundation the expansion of the last few years has been built, and in Cornwall today pigs are of a higher general standard than they have ever been.

The old traditional breeds of the county were the Large Black and its counterpart in almost everything but colour—the Long White Lop-eared. Prior to recent breed improvements these tended to over-fatness and thickness of shoulder for the bacon trade, but their prolificacy, docility and ability to deal with a high proportion of grass and other "roughages" in their diets, are attributes well worth preserving and still highly prized in Cornwall. The Blacks, crossed with the Large White, produce a good bacon pig—a long pig, neat shouldered and well-hammed, and earlier to reach bacon weight than either of the pure breeds.

The Saddlebacked breeds are becoming more popular, both as pure breeds and for crossing, but probably the major influence on the improvement in carcass quality of post-war years has been the tremendous increase in the use of Large White boars for crossing with local breeds. This has, in turn, encouraged the maintenance of pure-bred Large White herds, and about a third of our pure-bred herds are now of that breed.

A major influence on post-war breeding trends has been the Ministry of Agriculture's Premium Boar Scheme, which, in this county of small farms, has been particularly appropriate. The Scheme aims at improving bacon

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quality by encouraging the use of boars suitable for crossing with local stock. The Ministry's Livestock Officers assist by selecting good boars which their owners make available for use on sows and gilts belonging to neighbouring farmers. In Cornwall, the Scheme has increased rapidly in popularity since 1947. In that year twelve premium boars were operating : in 1952, the number has risen to 106, or about 10 per cent of all the premium boars in England. Of these, 79 boars are of the Large White breed, which has been consistently recommended by the Livestock Officers as the most suitable for crossing with existing stock. The use, under this Scheme, of pure-bred boars of good bacon type, is having an increasing effect on the improvement of the quality of pigs entering the bacon factories. The Scheme is likely to expand still further, as it so obviously appeals to the small pig-keeper who is unable to keep a really good boar for his individual use.

**The Cottager's Pig** The popularity of pigs in Cornwall is by no means confined to the farmers. Farm workers and cottagers the county over fatten pigs to augment their rations and their incomes. An idea of the number of pigs so kept can be obtained from the C.A.E.C. Returns from holdings of "less than one acre." On these holdings—comprising 646 acres in all—over 2,500 pigs were being kept in March 1952. Very few of these were breeding stock, and most of them will ultimately find their way on to those convenient hooks in the cottage kitchen.

The Pig Club movement has made great progress since it started here in 1941 with four clubs. There are now 123 clubs operating in all parts of the county, and although some of these have not maintained the enthusiasm of the expansion years of 1948-50, most of them show very healthy prosperity. Pigs belonging to club members live mainly on household and garden scraps, and are, therefore, performing a valuable function by converting what might otherwise have been waste, into good country fare.

The future of the pig industry is, of course—as it seems always to have been—uncertain. With present world food prospects, it is obvious that little can be expected by way of increased supplies of pig-feed from abroad. If more pigs are to be kept in Britain, we must grow the food for them. Cereal crops present special difficulties in Cornwall, but there are still many farms where a few extra acres of corn could be grown and converted into pig-meat. We have only just begun to explore the possibilities of augmenting cereals with "roughages," and of utilizing the pig as a grazing animal. Whatever the future, there can be no doubt that we, in Cornwall, need a high pig population if for no other reason than to maintain the high soil fertility demanded by some of our intensive systems of husbandry. In addition, we may be sure that the pig can deal with the foods available as efficiently as any other farm animal, and can make the major contribution to increasing our national meat supplies.

## THE INTENSIVE PRODUCTION OF THE SOUTH-WEST

H. W. ABBISS, M.B.E., N.D.H.

*Truro, Cornwall*

OUT-OF-SEASON production is fairly descriptive of the horticultural or market-gardening area of the South-West. Because of the genial climate, Devon, Cornwall, the Scillies and, to a less degree, parts of Somerset, are famed for their winter and early spring production of vegetables, flowers and soft fruits, all of which are widely distributed to the markets of the industrial North, the Midlands and London. In addition to large supplies of high-value winter and spring vegetables such as winter cauliflower, spring cabbage, lettuce and early potatoes, early daffodils, multi-coloured anemones, calendulas and many other flowers are grown and sent to brighten the dreary winter days in most homes in Great Britain.

It must be emphasized that there is no dividing line in the West Country between general farming and market gardening. Thus the writer's records show that some 5,000 growers or farmers in Cornwall were at one time producing one or more market-garden crops. The same remark can be applied to Devon, in which county one also finds a very large area devoted to "vintage" fruit production. Before the war too, small livestock, particularly pigs and poultry, were kept on a very intensive scale, and Cornwall held first position for pigs, whilst the poultry figure was not far short of 3,000 birds per thousand acres. This high stocking went hand in hand with intensive production, since the demands of such an industry were for a high soil fertility. The war-time and subsequent shortages of feedingstuffs have proved a serious handicap.

The underlying factor of early or out-of-season production is the warm winter soils enjoyed by Devon, Cornwall and the Isles of Scilly. Records show that many of these soils are some seven degrees warmer than those of East Anglia. But, on the other hand, heavy rainfall and high winds can do extensive damage and require the grower to provide extensive natural or artificial windbreaks. The high rainfall also limits top fruit production, since areas having over 35 inches per year are unsuitable. Nevertheless, we find some excellent top fruit production in parts of Devon and Somerset, while specialist areas, as in the Tamar Valley (Cornwall and Devon), the Combe Martin district (North Devon), and the Cheddar Valley (Somerset) are famed for soft fruits, particularly strawberries. Many areas in the South-West have excellent weather records, with few early or late frosts. In this category fall the Isles of Scilly, the Mount's Bay and Fal Valley areas in Cornwall, the Dawlish-Teignmouth area and Combe Martin. Very successful market gardening is also carried out on both banks of the Exe and around Exeter.

**Soils and Production** Soil types also dictate the kinds of crops grown—even the varieties within them. Many market-gardening areas in both counties are on the Devonian series, and the red soils of Devon have a special reputation for their intensive production. The war changed the methods of production to some extent, but it also resulted in other areas emulating the short-term ley farming of Cornwall. On the whole, fertility and soil structure have been maintained in market gardens for many generations, particularly in Cornwall, by interposing these leys in the production of vegetables, flowers and soft fruits.

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Composting, another technique which received great prominence during the war, has again been the practice for many decades in the far west. The "pile" heaps, composed of broccoli stumps, seaweed, farmyard manure and north coast calcareous sand, with a certain amount of town refuse, were a common sight in the market-gardening areas, and provided the bulk of the organic dressings for the early vegetable crops, especially broccoli, cabbage and early potatoes grown in the Mount's Bay area. As with the system of short-term leys, it is an example of a practice which started in the west and spread to many other areas. Compost is not available in such quantities today, and this fact has given rise to leys of even shorter duration (in some cases of only a few weeks). Italian ryegrass is often sown down at the rate of 40-60 lb. per acre between two crops, such as early potatoes and autumn-planted bulbs or spring cabbage, to enhance soil fertility and maintain soil structure.

In Devon and Cornwall particularly, the intensive production areas are either on the alluvial soils of the river valleys or in the coastal regions. This does not imply that all the early production is on level land, as in the fertile Tamar Valley where we have the shaly soils so famed for early strawberries and double-white narcissi. Many of the production areas in the coombes, valleys or spurs are extremely steep. In some of these areas one might say it is only due to the industry and ingenuity of the Cornish and Devon growers that such steep slopes—where it is often easier to slide down than walk—produce these valuable out-of-season crops at all. The difficulties of the growers in these districts is emphasized by the fact that the soil is often washed down to the bottom of the valley and has to be hauled up again to the top of the slope by a scoop, which is now frequently operated by a tractor winch, but in bygone days was worked by a horse drawing a cable over a pulley.

It should also be pointed out that there are many mineralized areas in this region as well as rocky, high, barren places where the total annual rainfall is not far short of three figures. When mining fell upon bad times many turned their attention to the cultivation of smallholdings, and this is the chief explanation for the tremendous number of cultivators. An analysis of the 13,500 holdings in Cornwall, given opposite, shows that the production on many of these areas must be highly intensive if a livelihood is to be obtained from them.

	acres	per cent
over 300	..	0.6
" 150	under 300	5.5
" 100	" 150	7.6
" 50	" 100	16.9
" 20	" 50	23.4
" 5	" 20	29.2
" 1	" 5	16.8

**Overcoming the Natural Hazards** One of the greatest enemies of the small producer is, of course, the high wind which comes in from the Atlantic. This necessitates in many cases the introduction of shelter-belts, either natural or artificial. To provide artificial shelter, such materials as fine-mesh wire netting, wattle hurdles, hop netting, or hurdles made from laths or rushes are used. The advantages of this kind of shelter are that it can be taken down after the late autumn, winter or spring crop has been cleared to facilitate the cultivation of the land. For natural shelter in some areas, tree belts of *Pinus Insignis*, and *Cupressus Macrocarpa* have been planted; but the latter burns very badly and the new hybrid known as *C. Lelandii* (*C. Nootkatenis* × *Macrocarpa*) will no doubt take its place in future plantings. Many shrubs are also used as

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hedges and in the frost-free Scillies we find *Pittosporum crassifolium*, *Olearia Traversi* and *Olearia Forsteri* planted extensively, whilst on the mainland growers favour *Escallonia*, in its various forms, particularly *E. Macrantha*, *E. Rubra* and *E. Ingrami*. Other subjects such as *Privet*, *Lonicera nitida Griselinea* are extensively used, although they are great robbers of the soil, and it must be remembered that these shrub-breaks can harbour pests and diseases. In addition to these types of shelter, growers often interplant belts of kale, broccoli or tree mallow between low crops such as anemones, violets, lettuce, etc., which benefit from even this dwarf type of shelter.

Other specialized methods are also used to ensure earliness, such as growing bulbs, salad crops, and anemones on raised beds. The banking of crops such as winter cauliflower or broccoli, spring cabbage and autumn-sown beans and peas improves drainage and gives earlier and warmer production soils, and in the case of some of these crops, e.g., beans and broccoli, it gives protection from wind or a firmer anchorage. With early, high-value crops such as early potatoes, seeding rates of 2 tons of seed per acre (often using cut sets) are double those ordinarily used. On the light alluvial soils in the coastal regions, very close planting in 10-inch rows is common with no banking, and high nitrogenous surface-feeding. In the earliest areas, the time of lifting the potato crop compares favourably with that in Jersey.

In addition to the likelihood of high winds, we have the disadvantage of heavy leaching of nutrients from the soil. It is for this reason that, although in winter preparation we may plough in a half dressing of fairly long farmyard manure or a short-term ley, it is advisable in the spring and some few weeks before cropping to incorporate in the top few inches a dressing of either short organic manure or slow-acting bag manures such as meat-and-bone, shoddy, hoof-and-horn, or fish guano—in other words, manures which have a long period of availability. This particularly applies to such long-term vegetable crops as broccoli, or even anemones. With both, it is essential to see that the lime status is right, as the majority of the soils in Cornwall and Devon are not rich in lime. We have, however, a good natural source of lime in the western counties in the form of the calcareous sand dunes on the north coast; this material is carted in considerable quantities on to the agricultural and horticultural holdings of the South-West. Records show that in one of the western counties alone, over 200,000 tons were carted in the course of a year to maintain the lime status. It should be explained that some of this sand contains as much as 50 per cent carbonate of lime and is, therefore, a very cheap source of supply, particularly as the cartage also qualifies for subsidy.

It is impossible to give a full list of all the crops grown, but if one wanders through the most intensive areas of Devon, for example, through the Starcross-Dawlish-Teignmouth area, then down to the Tamar Valley (where there is a joint Devon and Cornish production), and west to the Fal Valley, Mount's Bay area and the Isles of Scilly, a fair idea can be formed. They are mainly winter brassicas, salad crops, early carrots, rhubarb, and later, early potatoes. The production is fairly general in both counties—from Exeter to the earliest cliff-pockets in West Cornwall and the Scillies. Top fruit is often used in the Tamar Valley to shelter the under crops of vegetables and spring flowers. In the latter category, we find very extensive production of violets and anemones in both South Devon and Cornwall. The Isles of Scilly specialize mainly in early bulb flowers as also does West Cornwall and both the Devon and Cornish sides of the Tamar. In all the mainland areas, however, we also find extensive production of such crops as polyanthus, wallflowers, stocks, forget-me-nots, calendulas and other early flowers.

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### Experimental Stations and Growers' Associations

Considerable changes in the market-gardening industry of the two western counties have taken place during the last twenty-five years, and much of this can be attributed to education. In this connection the small experimental stations, established and run first of all by the County Councils and later by the Ministry of Agriculture, have played their part. Two specific instances may be given of the work of these stations. In the early 1920s we were importing something like 37,000 tons of French broccoli or winter cauliflower and, largely as a result of the work of the Gulval Station and the commercializing of its work by a well-known seed firm, this 37,000-ton importation was converted to a Cornish production which, at its peak, exceeded 50,000 tons, while a small but very efficient contribution of over a thousand tons was made by the growers in South Devon.

Another achievement of the small Gulval Station was the introduction of the anemone as a commercial flower, the seed being supplied by the then Chairman of the Station. Today we probably have something like 1,700 acres of this crop in Cornwall, Devon and the Cheddar Valley of Somerset. These small experimental stations—two in the Tamar Valley, at Elbridge on the Cornish side and Bere Alston on the Devon side; Gulval on the Penzance peninsula; and another small plot on St. Mary's, Isles of Scilly—have all contributed to the building up of a very important market-gardening industry of which the value in Cornwall alone, prior to the last war, was stated to be over £5 million annually. The South-West has also pioneered in other directions, and through its commercial shows at Penzance and Plymouth it has improved the standard of grading and marketing of its products as well as popularizing new crops and publicizing the important market-gardening industry of the West. These shows were the first of their kind ever held in Great Britain; again, the area was the first to run Growers' Educational Tours to other areas, and also to stage exhibits of their vegetables, flowers and bulbs in London and elsewhere.

Growers themselves have tried to organize their industry and there are two flourishing growers' co-operatives—the Tamar Valley Growers' Association, and the Cornwall Growers' Limited (formerly known as the West Cornwall Bulb Co-operative Society) which erected its public sterilizing plant for bulbs as far back as 1926.

### The Intensive Grower has his Difficulties

The lot of the intensive grower is not a happy one, since inclement weather, as in the past season, may easily ruin his crop. In recent years, too, the industry has become highly mechanized, locking up much of the growers' capital. Further, many growers have not yet recovered from the setbacks which the war-time reduction of their flower crops demanded.

The present high cost of containers and the fact that many crates and boxes have to be used over and over again (thus placing the home producer in an unfavourable position with foreign produce of similar quality in clean, non-returnable containers) are among other additional hardships.

Yet clearly a West Country industry, with an annual potential of 150,000 tons of goods- and passenger-carried vegetables, fruit and flowers for the markets of the industrial North, the Midlands and London, is not the least of our national assets.

## SEALE-HAYNE AGRICULTURAL COLLEGE

**D**OMINATING the Showground to the west, standing 500 feet above sea level, with the sea away to the front and the vast rolling stretches of Dartmoor behind, visitors will espy the mellow brick and Portland stone structure of Seale-Hayne Agricultural College. Well designed, solidly built, and in the centre of its farm lands, the College would take the fortune of a Rockefeller to build today.

Charles Seale-Hayne was a Devonian landowner and Privy Councillor, and held the Liberal seat for the old Ashburton Division. By his will in 1903, he left a large legacy for educational purposes at a college to be erected in the neighbourhood of Newton Abbot, the class of education to be specified later. He died before giving those precise directions. Viscount Lambert, also a Devonshire M.P., was an active executor of the will. He, realizing the need for agricultural education, secured the consent of the Court of Chancery to divert the legacy to the foundation of this College. Sir Thomas Elliott, a former Permanent Secretary of the Ministry of Agriculture, gave every possible assistance. Incidentally, Lord Lambert is Chairman during his lifetime of the Governing Body, which includes representatives of the Ministry of Agriculture and the County Councils of Devon and Cornwall. The site was selected, the plans drawn up, and in 1914 the College was ready for occupation, only to be taken over by the authorities as a military hospital for shell-shock cases. In this way it continued until 1919, and it was not until January 5, 1920, that it was opened for its rightful purpose. It is, therefore, a young college as colleges go, with its traditions yet to build.

**Thirty-Two Years of Development** Once the College buildings, spacious, and including lecture rooms, library, study-bedrooms, well-equipped laboratories and a dairy school, were erected, the farm, a dilapidated, though picturesquely traditional one, had to be remodelled to meet the needs of teaching, and an entirely new range of buildings, with farm cottages, was constructed. Twenty years later, a Danish piggery was added and the dairy buildings extended, whilst further modernization has taken place in the last four years, and machinery sheds, silos, Dutch barns, bull-pens, isolation boxes, dung-stead, workers' rest-room and farm office have been added. Houses for academic staff and additional cottages for workers have been built, and but for the recent embargo on building, a very essential assembly hall would have been under construction. So the College has grown, and with the buildings the number of students and teaching staff also. At the first session, there were 37 students taking the longer courses in agriculture and 49 students on short courses; today men and women students number over 200, mainly taking two-year diploma courses, whilst the academic staff has grown from 10 to 26.

As with most other comparable institutions, normal activities were abruptly interrupted by the outbreak of war in 1939, and the students were disbanded, most of the staff being seconded to the County War Agricultural Committees. The main task of those remaining in the College became the training of members of the Women's Land Army, who spent four weeks on the College Farm learning to milk, drive a tractor and familiarizing themselves with the tools and routine of the farm. In four years, some 950 girls received their initial introduction to farm work in this way. And then, in the autumn of 1942, the College wheels began to turn once more with the advent of men awaiting their call to the colours. It was a sad blow when, in 1945, the institution of the National Agricultural Advisory Service

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caused the severance of the Ministry's Advisory Staff from the College, to be centred at Provincial Headquarters in Bristol and at the Sub-Centre at Starcross. In the twenty-three years, the old Advisory Staff had been well known for their work and much sought after by the farming community. Moreover, the combination of research and advisory work with the more exacting teaching of students provided invaluable experience for the officers, and enabled the students to be taught by men well versed in the day-to-day problems of farming under widely diverse conditions.

**From Precept to Practice** What of today and tomorrow ? There is immense advantage attached to the agricultural college where the students can walk from lecture room to field, from precept to practice. How great this advantage is can be judged only by those who have learnt their scientific agriculture in the heart of a town, be that town ever so attractive, and then augmented the theoretical training by infrequent visits to the institution's farms, many miles distant, or perhaps to neighbouring farms, where little or no control could be exercised over the practice. At Seale-Hayne, the students enjoy the great advantage of seeing the precept of the lecture room put into practice on the College Farm. Their college life and work is an integral part of the College estate, as it should be if they intend to play their full part in this great industry.

Courses at the College provide instruction in agriculture, dairying and rural studies. The first year of the degree course in agriculture is taken at the University College of the South-West, Exeter, and the second and third years at Seale-Hayne. The diploma courses in agriculture and dairying are each of two years, whilst that in rural studies is a one-year course for qualified teachers, or intending teachers, who have completed their training at a recognized training college. It is designed for those who seek appointments in schools where the curriculum has a rural bias or includes rural studies. By far the great majority of students taking the diploma courses seek their own farms ; and this being an ambition well-nigh impossible of attainment in these days, except for the few with deep and richly-lined pockets, most have to content themselves with farming for someone else. The College has a high reputation for the quality of the men and women it trains as farm managers, bailiffs, and dairy farm specialists, whilst not a few make good in the commercial, advisory, teaching or technical spheres. Former students hold responsible posts in administration, teaching, commerce, advisory work and in practical farming at home and abroad.

The function of the College Farm is that of a teaching unit, and under the stress of national needs the primary aim of the cropping is to provide the greatest possible degree of self-sufficiency in feedingstuffs for all classes of livestock. Grass is by far the most important crop and its production, utilization and conservation receives special attention. The farm is mechanized to a high degree and includes a grass drier, combine harvester, a full range of silo types and comprehensive field equipment. The livestock comprises a pedigree and grading-up herd of South Devon cattle, a pedigree herd of Guernseys, a flock of South Devon sheep and a herd of Large White pigs. As might be expected, all cattle are T.T. and attested and milk-recorded. The poultry unit consists of a semi-intensive section used for pedigree and experimental work, and a farm section which is housed in fold units and used in conjunction with the crop rotation. The horticulture unit, once used for teaching purposes, is now purely a commercial unit for supplying the College with fruit, flowers and vegetables. There is also a spacious botanic garden.

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**Plant Breeding and Bees** The Crop Improvement Branch of the National Institute of Agricultural Botany has conducted trials on the College Farm since 1946, this being one of the eleven regional out-stations in the country. After continuous and intensive research in the breeding of new varieties of winter-hardy cauliflower (broccoli), resistant to Ring-spot and capable of yielding a succession of crops from December to May, five strains of Seale-Hayne seed have become widely known. Seale-Hayne No. 1 (A.6) has been established under the system of double cropping practised in the Mount's Bay area of Cornwall, whilst Seale-Hayne No. 4 (D.K.7) has enabled the crop to extend into ley farming areas outside the original market-garden districts.

The College maintains eighteen colonies of bees, mainly hived in National type houses. These stocks are used for teaching purposes and in connection with research work on the effects of plant protective chemicals on honey bees, this work being financed by a grant from the Agricultural Research Council. The Council also supports research on mastitis control, which involves survey work on the incidence of this disease in dairy herds in Devon as well as research into methods of control. Experiments are also being carried out to determine the value of iodized mineral oil in the treatment of those cases of mastitis which do not respond to penicillin treatment. Broadly speaking, the research work in the College is directed primarily towards solving some of the problems associated with farming in the south-west of England, and a particularly important aspect of the work is the compilation of complete and detailed records of all farm activities.

**Confidence in the Future** Never before has the need for maximum production from our own soil been greater if we are to feed the people of these Islands adequately, and hence there is a paramount need for technical training of the farmers of the future. Here in Devon we have an agricultural college whose influence must play an ever-important part in the farming life of the South-West and, indeed, of the country as a whole. A healthy symptom, which speaks volumes for the status of the College, is the activity of the Old Students' Association. The erection a year ago of a spacious and dignified Memorial Sports Pavilion, subscribed for by old students, exemplifies their affection and pride for their *Alma Mater*, whilst the gathering of old students from all parts of the country each year for the Annual Refresher Course is not only most impressive but indicative of the healthy, virile spirit which exists in the College. It is with confidence that one looks to the future of Seale-Hayne, a confidence which is shared by many. An increasing number of students at the College today, or entered for the future, are the children of former students—so is tradition developed.

It was Daniel Webster who said : "The cultivation of the earth is the most important labour of man". Would there were many more Websters today. But cultivation in these times needs the blending of science with practice, which was virtually unknown in his day ; Seale-Hayne College strives to give the necessary blend of science with practice to all its students.

*Footnote by The Rt. Hon. the Viscount Lambert, P.C., Chairman of the Governing Body.*

When, some forty odd years ago, the Court of Chancery sanctioned the use of a legacy for the establishment of an agricultural college, the immediate necessity was not apparent. Wheat, meat and every variety of food poured in great profusion into this Island in payment of interest on foreign investments and services rendered. As long ago as 1893, I was appointed a mem-

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ber of a Royal Commission on Agriculture. The evidence was overwhelming that, owing to low prices, farmers were going bankrupt and owners were unable to maintain buildings and improvements. Two world wars have changed the scene. Seven years after the last war, nutritious foods are scarce and severely rationed. The Ministry of Agriculture, fostering the production of food, is the most important Department in the Government. Soldiers, sailors, airmen and workers could not function without food. In this thickly populated Island (700 to the square mile) we can barely produce sufficient food for half the fifty million population, and hence more than two out of every five people must be fed on imported food products. The agricultural community have done a splendid job, but the need for technical training of those entering the industry grows more urgent. Thus Seale-Hayne Agricultural College, which is devoted to teaching young men and young women to produce the largest amount of food with the least amount of human labour from our own soil, is performing a task of vital national importance.

## CIDER : FROM FARM TO FACTORY

EMERITUS PROFESSOR B. T. P. BARKER, C.B.E., M.A.

*University of Bristol*

TWO of the characteristic farm products of the county visited by the Royal Show this year—Devonshire cream and cider—have long been familiar in verse and song and through association with traditional rosy-cheeked dairymaids and apples. For centuries the West Country apple orchards have been famed for their product. As examples of a high standard of fruit culture, their repute during the past hundred years or so could hardly be described as flattering, although the various efforts for improvement during recent times appear at last to be showing tangible results.

It is now well established that the character and quality of a cider depends primarily upon the kinds of apples from which it is made. The actual methods of cider-making and the subsequent management of the liquor are important in that they can result—alas, all too easily—in a lowering of that quality if not correctly applied ; but in themselves they cannot add to the natural fruit quality as it stands at the time of milling the apples.

Because of this overriding influence of the apple varieties themselves, the ciders produced in different districts of the West Country cider area possessed, until recent times, highly distinctive characters. For instance, Devonshire cider was typically soft to the palate and relatively sweet, owing to the predominance of local varieties of apples low in acidity and astringency. At the other extreme of the area, from Bristol northwards, the characteristic ciders of Gloucestershire, Herefordshire and Worcestershire were brisker and harder in taste on account of the high proportion of sharp and bitter-sweet sorts. The luscious Somerset ciders from the more important orcharding districts in that county occupied an intermediate place, being rich and full-bodied with a distinct bitter-sweet character : they reflected very faithfully the preponderance of bitter-sweets in the orchards.

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Fifty years ago, experienced judges had no great difficulty in recognizing the county of origin of the individual ciders entered in the open classes of the cider competitions at the leading agricultural shows. Often it was possible to locate more closely the particular district and, in some instances even the actual farm where the cider was made. In fact, the measure of success in exercises of that kind served as a sound guide to the critical quality of the palate of the individual concerned !

### The Factory takes over from the Farm

The first half of the present century saw such radical changes where West Country cider is concerned that the above remarks on county and district "types" of cider need qualification. These refer to the period when it was the usual and age-old practice for the farmer to make his own cider from home-grown fruit. The drink was made mainly for consumption on the farm, and when there was any surplus it was normally sold locally. Outside the West Country, cider was relatively scarce and in many parts of Great Britain practically unknown except by name. Today, through commercial enterprise, West Country cider can be obtained without difficulty in any part of the British Isles, and the stage has now been reached where its distribution is becoming world-wide. From small beginnings various factories, set up at convenient centres in the West Country, have developed rapidly, and some of the larger firms now have annual outputs exceeding a million gallons. The making of farm cider has diminished correspondingly, and most farmers now sell the fruit from their orchards to the commercial makers.

The sequel has been a marked decline in the farm orchard acreage since 1900, and a serious aspect of that fall is apparent in seasons when crops are below average and there is insufficient cider fruit to meet the requirements of the factories. Meanwhile, the market price for the fruit has risen from £1 or less per ton in the first decade of the present century, to a maximum of £18 per ton in one year during the 1939-45 war, and a current price of £10 per ton—very material increases even allowing for the altered value of the pound.

**The Commercial Product** The fundamental change, however, is one which may be deplored by the older generation of cider-drinkers, who can recall the distinctive county types of the beverage which prevailed in the early years of this century. The latter have now been largely superseded by what can be described as the commercial type, whether in the form of "dry," "medium" or "sweet." A commercial article must aim at uniformity in character and must meet the taste of the public. Minor differences, of course, are to be expected, but they do not compare with the clear-cut variations of the ciders of former days. Modern technique ensures that the product can be presented in attractive form and dependable condition ; so on balance, if flavour isn't always as good as that attained in the old, small-scale brew of farmer-makers in exceptionally favourable seasons, what has been lost on the swings has been gained on the roundabouts.

Bulk production depends upon the necessary fruit supplies, and their character, as shown earlier, decides the quality of the product. The yield of juice from a ton of apples averages about 150 gallons : hence each of the larger factories has an average annual fruit requirement of some thousands of tons, representing the produce of upwards of a thousand acres in each instance. The older farm orchards, planted before the dawn of this century,

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are still the source of a high proportion of this fruit. Some unkind critics have described these orchards as containing as many varieties as there are trees. Exaggerated as that statement may be, it at least conveys a justifiable picture of the miscellaneous mixture of different apples contained in them. At the most there are rarely more than a very few trees of any one kind in an individual orchard, and most old orchards, even in the same parish, possess a different mixture, while it is unusual to find an orchard without one or more sorts—chance seedlings without a name, or bearing a local name—which are unknown elsewhere. The famous Kingston Black apple was the only variety common to all the counties. Under such supply conditions the nondescript character of a high proportion of the fruit passing into the larger factories demands skilful blending of the resultant ciders to yield a palatable drink of reasonably uniform character and quality. Distinctive local character in these circumstances is practically impossible for the largest factories, and it is only in cases where the output is relatively small and the fruit drawn from the immediate neighbourhood that the locality feature in flavour can be maintained in special brands.

### Selecting the Best Varieties

Each future decade should show a distinct improvement in the position as the cumulative effects of orchard reorganization, which have resulted from research at Long Ashton begun in the early years of the century, together with the work of the county horticultural staffs and the direct efforts of some of the commercial makers, are felt.

The vintage qualities of hundreds of individual varieties of apples and the orchard behaviour of many of them have now been investigated. The search for varieties of high merit in both those respects has been made in the old farm orchards throughout the West Country, and has included also a number of varieties from France and other Continental cider-making countries. The pick of these have been propagated, and several trial orchards have been established at various centres with the trees thus raised. By degrees the position has been reached when definite recommendations of high-grade varieties, satisfactory both to the grower and the cider-maker, can be made. The old county boundaries for these have disappeared, and throughout the whole cider orchard area the cream of the respective county varieties can now be found. In addition, substantial numbers of trees of each are being planted. This movement towards fewer varieties and greater tonnages of their crops means, for the factories, greater uniformity and better quality of their raw material in increasing quantity as the years pass on, and, consequently, a progressive improvement in the standards of their products.

A feature of some significance for the future of cider fruit production in the West Country is the establishment of extensive orchards by some of the cider-making firms. This would appear to portend that the industry may become responsible in course of time for the production of at least a substantial proportion of its raw material—either directly as the grower, or indirectly by arrangement with other growers—and thus ensure that it gets the desired class of fruit.

**Devon's Contribution** To these advances Devon's contribution has been noteworthy. Early in the field in the development of the factory system on an extensive scale, it has gone far by organized effort to deal with the problems of orcharding. Although favoured by a warm and genial climate, well suited to the production of apples of attractive appearance and quality, and in some districts with soils capable of supporting fine orchards, in most other respects its natural conditions are the reverse of

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easy for the grower. It is a county of steep, windswept slopes and narrow, enclosed valleys ; level, well-ventilated sites for orchards are less common than in most other parts of the cider orchard area. Not infrequently, severe gales damage the trees heavily. The atmosphere tends to be humid and conducive to the free growth of moss and lichen on the trees, and to the invasion of pests and diseases, unless the necessary counter-measures by spraying are taken regularly. In spite of these difficulties imposed by nature, the county possesses among the younger generations of its orchards examples rivalling the best to be found in any of the other cider counties. In some districts extensive planting of new orchards has taken place, and the Whimple area holds the record of having the highest cider apple tree population of any district in this country.

The cider industry is indebted to Devon for some of the most valuable of our English cider varieties. Apples of the sweet class—those of low acid and tannin content—are the outstanding feature of the country's indigenous apple flora : no other county approaches it in this respect. First-class varieties of this type, so rare elsewhere, are relatively numerous here. Of these, Sweet Alford is the best-known outside the county and probably the most widely-grown within it. Since it first attracted general attention in cider-making and orchard trials at Long Ashton almost fifty years ago, it has been planted extensively throughout the West Country. In favourable seasons it is one of the most beautiful of all apples in appearance, with its delicate rosy blush prominent on a pure cream background. Also widely known in Devon cider pomology is the name Woodbine ; but, unfortunately, it is the cause of as much confusion as is the famous Foxwhelp of the orchards in Herefordshire and its adjacent counties. Like the latter, there is considerable doubt today as to which of the various apples passing under the name is the true original. There are certainly at least four different Woodbines, a real indication that in past history the original must have been an apple of high repute. One of them, sometimes called Slack-me-girdle, deserves mention not only for its vintage quality, but also for its highly descriptive cognomen. Another sweet variety beginning to attract attention outside Devon is Sweet Coppin. It promises to be a second Sweet Alford, which it clearly resembles in appearance and vintage character : indeed in some respects it is probably the better of the two. Among the lesser-known apples of the same class is the Tale Sweet : it has given highly encouraging results in the initial trials.

Outside the sweet class, Devon has also produced some varieties of the sharp and bitter-sweet classes which have made good in one direction or another. Among the sharps, Fair Maid of Devon justifies its name by the brilliant richness of its rosy red colouring. Crimson King, another bright red apple—Bealy Down Pippin is a synonym in some localities—gives good orchard performance and can be used either for culinary or cider purposes : like one of the Woodbine types, it has spread over the county border into South Somerset. Langworthy, although lacking the attractive colour of the other two sharps just mentioned, shows superiority in vintage quality. Among the bitter-sweets are Tremlett's Bitter and Ellis Bitter, which deservedly have places in the front rank of their class. Both are fine, high-coloured apples, worthy of cider trial in other counties for combined orchard and vintage qualities. On the whole, however, Devon is lacking in bitter-sweet varieties in comparison with the rest of the cider orchard area.

Nevertheless, the county can claim to have made an invaluable contribution to English vintage fruit, even if only its sweet varieties are taken into account. We may regret the disappearance from Devon orchards of some of

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its older famed varieties, e.g., Woodcock, which from ancient records seems to have been outstanding in its day : although comparison is impossible, since no trace of it exists in present-day orchards, at least it can be claimed that it must have been indeed a super-variety if it were better than the pick of the current Devon apples.

**Devon Perry ?** The farm orchards of the county lack a feature which is more or less conspicuous in those of the cider counties north of Bristol—namely, perry pears. Possibly they may have been given a trial in bygone days without success ; but it is certainly rather surprising that this fruit, which needs high temperatures and abundance of sunshine to bring it to the peak of vintage quality—conditions which Devon might be expected to supply more regularly than the other counties—has not gained a place. Even the best of ciders cannot compare with a first-class perry in delicacy and attractiveness of flavour. It is reported, however, that in the near future a trial is being established : so perhaps in due course Devonshire perry may achieve or surpass the fame of Devonshire cider.

## BOOK REVIEWS

**Devonshire** (County Book Series). D. ST. LEGER-GORDON. Robert Hale. 18s.

This seems to be the book for which many Devonians, myself included, have been waiting, and clearly the author's liking for his task was as great as his qualification to undertake it. The book is very pleasingly written and is admirably arranged. The chapters on Prehistory, Life on the Land, Woodlands, and Dartmoor's Appeal are especially good. Most importantly, the county's agriculture has had due attention, and in this respect the book is a considerable improvement on some others in the series. For the most part the illustrations are worthy of the text, although one cannot avoid the impression that a few of them have suffered by enlargement or in reproduction.

Of Dartmoor, the author has this to say : "It must be remembered that the main charm of Dartmoor lies in her primitive quality ; her immense loneliness and wild austerity ; her wide spaces and utter remoteness from anything approaching civilization. Rob the Moor of these features and her character is gone, and with it all that constitutes her attraction to the real nature-lover." These words deserve to be framed and hung wherever such matters are weighed and decisions taken. By all means let Dartmoor be a national park, but those of us who have known and loved it all our lives will pray that the Moor may be preserved from the petrol pump, the tea-room, the purveyor of whelks and the dispenser of broken bottles.

Paradoxically, the book as a whole is so good as to arouse the Old Adam in a reviewer and to challenge him to pick a few holes in it if he can. First, then, is the author quite sure that the tallest of the three Drizzlecombe menhirs is over 17 feet high ? Last spring, I made it about 15 feet 6 inches, although it is true that my measuring equipment was rather rough-and-ready, since I was really in the locality for the purpose of watching a bird whose breeding status in Devon had been questioned for many years !

With the author's comments on the brutal and senseless persecution of the badger I entirely agree. The badger's treatment in Devon has, alas, long been a blot on the county's fame. But the author's sentence beginning "When the badger emerges from his winter sleep, gaunt and ravenous . . ." puzzles me, for in a long and fairly intensive study of the badger I have never found any evidence that this mammal hibernates in the true sense. In very hard weather it may lie up for a few days, but I have seen badgers out and about in nearly every month in the year and many times have found their tracks in snow. Then, is the infiltration of the badger into Dartmoor as recent as the author has it ? There have been badgers in the clitters on certain parts of the Moor proper, all my lifetime and before it.

There are a few other matters on which one would like to join issue with the author, were there space to do so ; but I must curb my zeal as a naturalist and say, once more, that this is a good book—as good a book of its kind, in fact, as any Devonian could ask for. Mr. St. Leger-Gordon has done us proud. He has well and truly lifted the descriptive literature of Devon out of the plane of the tourist blurb, and away from the popular but rather sickly mixture of cider, cream, pixies, and Frankie Drake's apocryphal game of bowls.

F.H.L.

## BOOK REVIEWS

**Devonshire Studies.** W. G. HOSKINS and H. P. R. FINBERG. Cape. 36s.

Because a complete history of Devon, England's third largest county and the largest single administrative unit, has not yet been written, a warm welcome should be extended to any fresh and authoritative information on the county's historical and sociological background. The fact that this book, *Devonshire Studies*, is not a work of collaboration but of joint authorship is all to the good, for both writers are especially qualified to deal with certain fields of inquiry and each accordingly has left the imprint of his scholarship and personality on sections of the book for which he is responsible. The text is well served by 11 maps and plans, 8 illustrations, a sound bibliography and a really serviceable index.

Seldom, perhaps, has joint authorship been so successful in producing a satisfying book. The reader is taken back over the centuries to the closing decades of the seventh century, which saw that part of the Dumnonian peninsula now known as Devon almost completely overrun by the Saxon invader, and the British finally left in possession of the country beyond the Tamar now known as Cornwall. Settlement on Saxon lines quickly followed and the newcomers not only planted large villages over the Devon landscape but established also their open-field and communal system of farming. Many students of farming history, who, like myself, had been led to believe that the open-field system had never been introduced into this part of England (Braunton Great Field was held to be of relatively recent origin) will be greatly interested in Mr. Finberg's chapter *The Open Field in Devon*, in which documentary evidence as to the ancient establishment of the system is clearly put forward.

The Devon landscape is exclusively agrarian, and for the best part of twelve centuries the county has pursued its steady course of rural life unruffled by any industrial development beyond a little early cloth weaving around Exeter and the later dockyard development at Plymouth's Dock, now known as Devonport. This part of England early became and has remained a county of yeomen farmers and landed gentry, whose placid lives were patterned by the rain and sunshine of an ever-changing climate, the silence of isolated farmsteads and the society of small communal settlements.

Place-names became family names and family names place-names as time went on. Mr. Hoskin gives an extremely interesting account of this aspect of Devonshire's sociological history in his two chapters *Three Studies in Family History* and *The Making of the Agrarian Landscape*, and in the first part of the chapter *A Sheaf of Modern Documents* entitled "An East Devon Yeoman." In this last-named essay the author traces the history of his own family from the time, in 1855, that his worthy forebear, George Hoskyns, migrated from Stoke Abbott in Dorset to Luppitt in Devon. There the family continued to farm until the depression that followed the Napoleonic wars drove his great-grandfather away from the rural scene to seek a new and urban life in Exeter—a great break in the life of a family accustomed to farm leases of 99 years or "three lives"!

The last chapter of this extraordinary absorbing book, bearing the title *The Farm Labourer Through Four Centuries*, is a slight but interesting sketch of the farm worker's life in Devon from Elizabethan times, and includes some saddening information on the employment of women and children in agriculture and the system of apprenticeship. I would rather this chapter had been left out of a book which is of considerable importance and will be much valued. The authors write well. They both have the gift of making their reader see the boulder-strewn moorlands, the salt marshes of the seaboard and the winding lanes of the lovely Devon valleys. This book brings to us a real feeling for the West Country, so that we want to go west, over Dartmoor, on towards Land's End where the departing ships go down to the sea.

A.H.H.

**Cornwall (County Book Series).** CLAUDE BERRY. Robert Hale. 18s.

This addition to the series of "County" books will surely find its way on to the bookshelves of many lovers of the West Country. The author, a Cornishman, has cleverly interwoven his own personal story with that of the development over the centuries of the county he loves so well. Mr. Berry is a Padstow man, a fact that will suggest to all who know Cornwall that the blood in the author's veins has a strong admixture of salt water! We can expect him, therefore, to look at his own life and that of his county with one eye always on the sea. His greatest delights derive from the grandeurs of coast and sea, and the ships which sail it; his greatest disappointment the decline in recent years of sea fishing which, with tin-mining, once ranked as Cornwall's foremost industry.

Agriculturists will be grieved at the scanty mention which their own industry receives from Mr. Berry. True, he admits that farming is now Cornwall's chief source of income and hope of survival, but it is a recognition given, one feels, rather grudgingly in a few short

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sentences of a chapter devoted to "louster"—the Cornishman's expressive word for hard work. The author, has perhaps fallen into the all too common error of taking farming for granted. It is too easy to gaze enraptured from the Cornish hills on the patchwork pattern of tiny fields so typical of the county, and to forget that this beauty would be denied us but for the pride and industry of the farmer and his men.

However, I am sure farmers will be allowed this minor criticism of what is otherwise an altogether delightful book. "Foreigners" who are coming West this month for the Royal Show at Newton Abbot, and who intend to visit this strange country beyond the Tamar—to explore for the first time, or to renew old friendships—should read this book first. Not because they may feel the need of a guide-book—although the book is indeed full of information about places and things—but rather because, as much as any book I know, it will help them understand the character and the spirit of the Cornish people and of the old county itself. For here is the epitome of Cornwall—from the bleak expanses of Bodmin Moor to the wooded valleys of the Fal below Truro : from the grandeur of the high cliffs of Tintagel to the children's paradise at Looe ; from the Celtic settlements of Penwith to the modern café-on-the-beach ; from the delicacies of a Continental cuisine at a five-star hotel in Newquay to the fine old pastie in a cottage kitchen. It is all here, and much more besides, even to the touches of the hocus-pocus of piskies and ghosties which the Cornish sustain for the benefit of the "visitors."

Mr. Berry has captured the spirit of his county, because he knows and loves it, and he has succeeded admirably in conveying this knowledge and affection to his readers without unnecessary sentimentality.

H.B.

**English Legends (2nd Edition).** HENRY BETT. Batsford. 12s. 6d.

Legend belongs to the twilight of history ; to a world of faerie, of monsters and men, spectres and saints ; where the supernatural is commonplace and adventure the mainspring of imagination. Here, through countless generations, was the stuff of storytellers and the inspiration of minstrelsy. The English tradition is particularly rich in legend, and we of this essentially material age should be indebted to Dr. Bett for reminding us of it.

Of King Arthur and his knights and Robin Hood and his merry men, stories are legion and widespread. In Wales and the West Country more than six hundred place-names, it is said, derive from the legends of King Arthur, and the fame of Robin Hood is commemorated far beyond the Sherwood Forest area that gave him both asylum and a point of attack against injustice to the poor. Northumbrians, for example, will know of Robin Hood's Bog in the grounds of Chillingham Castle, where the famous herd of white cattle is reputed to resort when disturbed.

Not least of the interesting facets which Dr. Bett discloses is the multiplicity of the same legend, varying in detail and place and not infrequently with other sets of characters. The story of Lady Godiva, immortal to Coventry, has, for example, its parallel at St. Briavels in the Forest of Dean, where some seven hundred years ago a local maiden is supposed to have made the same sacrifice of modesty to win for the villagers the right to cut fuel in a nearby part of the forest.

Much activity has been attributed to the Devil in English legend, as witness the names of many natural curiosities of rock and earth. The Giant's Hedge in Cornwall is said to have had its origin when—

*One day the Devil, having nothing to do,  
Built a great hedge from Lerrin to Looe.*

Offa's Dyke in Shropshire was similarly held to have been dug in one night by the Devil, with a plough drawn by a turkey and a gander ! But if legend gives the Devil his due, the saints feature no less often—and more worthily.

In what cradles of imagination and blended superstition these legends have been nursed is beyond conjecture. Suffice it that they have been whispered down the centuries with additions, omissions and corruptions, until, like this collection of Dr. Bett's, they are captured in cold print as much for our education as for our entertainment.

S.R.O'H.

## BOOK REVIEWS

**The English Village.** VICTOR BONHAM-CARTER. Penguin Books. 3s.

The nineteenth century dealt harshly with the English village. First came the enclosures which reduced a landowning peasantry to landless labourers. Then came the Industrial Revolution whose factory-competition destroyed nearly all the local crafts and industries which had added so greatly to the wealth and variety of rural life. And finally the long depression struck at the one surviving industry of the countryside, agriculture, lowering alike standards, resources and hopes. The village we see today, therefore, is not an ancient form of community. Neither is it a truly modern one. It is the stripped and impoverished relic of an ancient community, improved economically in the last decade no doubt but most certainly not restored. But, unfortunately, failure to study the past has meant failure to understand the present, and today the village, superficially so familiar, is one of the least understood of all the communities of the realm.

A book by a man of Mr. Bonham-Carter's qualifications is, therefore, more than welcome. On the one hand, he is a countryman, now farming in Somerset, with considerable experience in local government. On the other, he has clearly spent some of his life in the towns and is consequently familiar with the misconceptions which affection and ignorance have so lamentably combined to produce. He knows his predominantly urban audience as well as his rural subject and his book, popular in appeal (and price), and clear in style, gives a detailed but balanced account of the origins, development and present realities of the village. The first part of the book deals with the background of rural history, the second with the various "constituent parts" of the modern village, the third with trends, tendencies and the future. The author deserves particular praise for his presentation of a singularly incoherent subject, while a foreword by Dr. Orwin bears witness to the quality of his work.

It is, however, unfortunate that Mr. Bonham-Carter did not follow his dogged reading of the standard books with more casual browsing in a more general library. He deals effectively, for instance, with the heretical modern concept of the village as an essentially agricultural community but misses the most striking illustration of the importance of the old industrial element, namely, the leaders it produced. Collins, the carpenter's son, was the last of a line which went back through Austin the miller's son to Ket the tanner and Litster the dyer. And surely Garratt's *Hundred Acre Farm*, Flora Thompson's *From Lark Rise to Candleford* and Tort's superb scrapbook, *Small Talk in Wreyland*, should find a place in even a limited bibliography of the village.

N.H.

**Flower Production for Market.** JACK HARDY. Crosby Lockwood. 18s.

Mr. Hardy has evidently given much thought to the kind of information likely to prove most useful to a grower. He acknowledges the problem of achieving maximum efficiency on nurseries which have been built up gradually over a long period, but gives an indication of how efficiency might be attained when a grower is in the fortunate position of being able to command all the capital and secure all the permits necessary to set up a complete unit at one time, or at least, on one plan.

The importance of soil sterilization is stressed but the use of the low-pressure steam system used in many small nurseries is not mentioned.

A large number of crops are discussed including most of the major market flowers. Naturally, the more important subjects such as carnations and chrysanthemums are given more attention than other crops, and the information given concerning their cultivation should, as the author states in his introduction, provide a reliable method which, if followed to the letter, will result in the production of first-quality blooms. Chrysanthemums for lifting are not mentioned.

The all important matter of packing and presentation receives considerable attention, probably due to the author's experience of many flower growers who make an excellent job of growing but are only moderately expert at getting the crop to look its best in the market.

The illustrations are good and many are helpful in explaining points in the text. It would have been an improvement if they had been more closely associated with the written matter. The indexing is neat and complete. Altogether this is a useful book which will provide the grower or student with concise information on the cultivation of most commercial flower crops.

A.D.H.

## BOOKS REVIEWS

### Turkey Production. W. J. LINTIN. Shell-Mex and B.P. Ltd.

The recent dramatic advance in the prevention and treatment of turkey diseases, the banning of poultry imports from countries in which fowl pest is endemic, and the formation of the British Turkey Federation, point to a bright future for the turkey producer in the United Kingdom. The appearance of Mr. Lintin's booklet is, therefore, most opportune, for it outlines in a simple manner the basic principles of management for the small and large producer and the breeder.

"Turkeys are essentially meat producers," writes Mr. Lintin, and he maintains that the turkey is one of the most efficient of the domestic animals in its ability to convert animal food into human food. Apparently, with turkeys killed at 28 weeks old, only 4½-5½ lb. of food are required for every 1 lb. of liveweight gain. Even this figure may be improved upon, however, for food conversion is a heritable character and may, therefore, be influenced by the adoption of a sound breeding programme. This subject is dealt with in an interesting chapter entitled "Turkey Stock Improvement," where it is suggested that health and stamina, meat production, and reproduction qualities, should be the basis on which the selection of breeding stock is made.

The booklet is the sixth in the poultry series published by Shell-Mex and B.P. Ltd., and is obtainable free on application to any one of their divisional offices.

R.P.F.

### Report of the Production Division, Milk Marketing Board. No. 2. 1951.

It would be difficult to find a more interesting account of the production side of the dairy industry in England and Wales than is given in this second report of the activities of the Production Division of the Milk Marketing Board. By means of tables, charts, and diagrams, it tells the story of the Board's milk recording and artificial insemination movements and how our various breeds of dairy cattle continue to "make the grade" despite the demands of climate and varying management.

Opening with a general note on the dairy industry, comment is made on the feed supply position and the striking changes that have taken place since pre-war days. Concentrates are scarce and expensive and can only be spared to balance a ration that is mainly home-produced. The problems associated with the larger bulk of this ration—which weighs some 50 per cent more per cow than before the war—are still not fully understood.

Much emphasis is placed on the continual expansion in the milk recording movement as well as in the artificial insemination service—and rightly so; for both these movements are closely linked, the former providing the basic information for improvement in the nation's dairy stock, and the latter the means of putting it into effect.

Among the many interesting facts revealed by a study of the figures collected by the Bureau of Records are that the yields of recorded herds are still increasing, that there is a steady narrowing difference in yields between different parts of the country, and that the fat content remains fairly steady over a wide range of yields and presents difficulties only at very high levels of yield.

The report is well produced and provides a mass of information of vital interest to the breeders of dairy cattle as well as to the ordinary milk producer.

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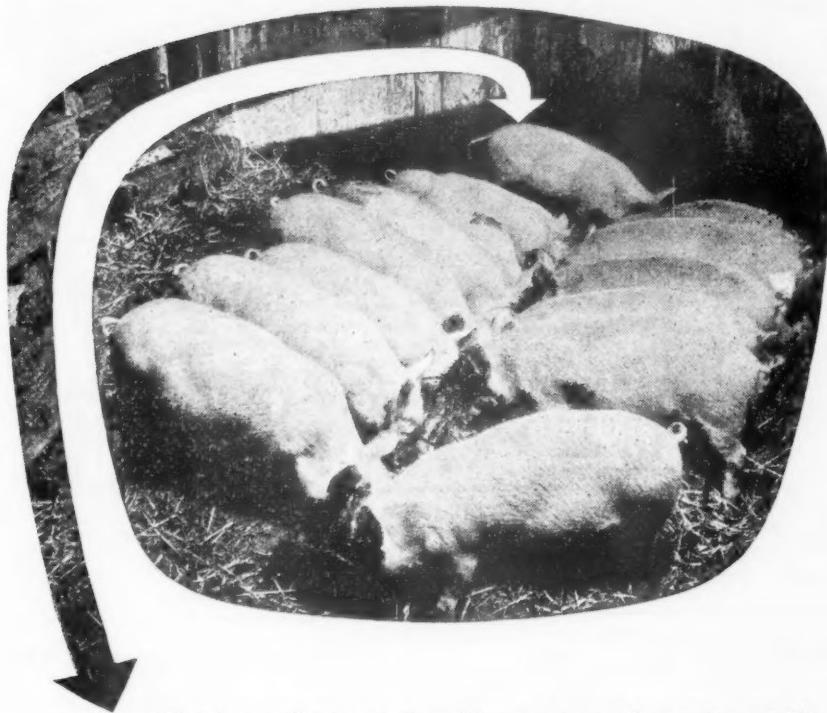
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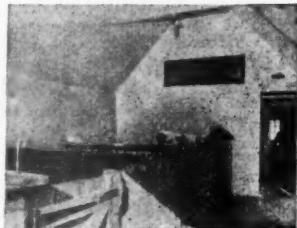
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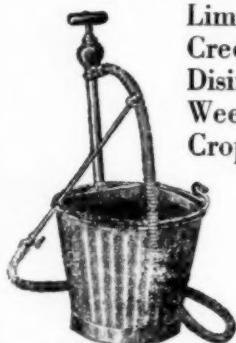
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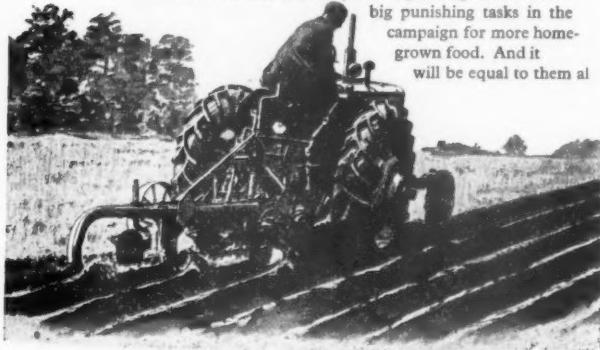
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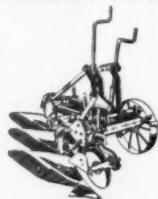


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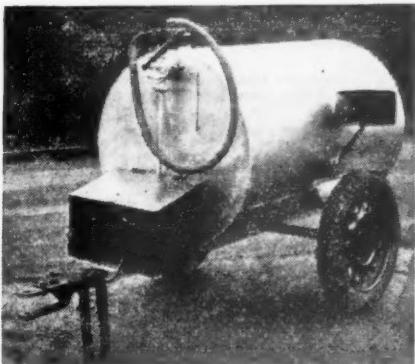
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